Boulder Reveries

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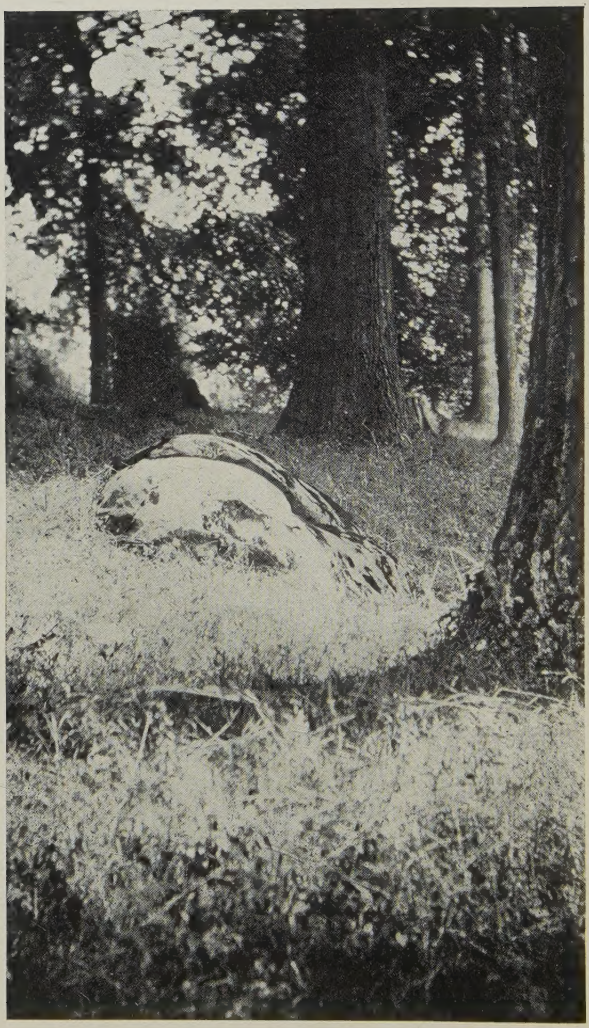

"Some old gray boulders in a shaded nook on a sloping hillside."

BOULDER REVERIES

BY

W. S. BLATCHLEY

AUTHOR OF "GLEANINGS FROM NATURE,"
"A NATURE WOOING," ETC.

"Time is but the stream I go a-fishing in. * * * What are three score years and ten, hurriedly and coarsely lived, to moments of divine leisure in which your life is coincident with the life of the Universe."

—*Thoreau*

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To her to whom I owe my three most priceless possessions; *life*, without which the matter and the energy now combined within my person, would be scattered far and wide throughout the universe; *hope*, instilled many times within my soul in the old dark days by her words of wisdom and her kindly deeds; *ambition*, which she ever fostered by pointing up to the leaders who have toiled before; these three, which have made me what I am, I owe to her—my mother.

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Preface.

"Rightly viewed no meanest object is insignificant; all objects are as windows, through which the philosophic eye looks into Infinitude itself." So wrote Carlyle, in speaking of the rag from which man makes paper, or the litter from which the earth makes corn. So thinks the naturalist as he wanders on and on through field and forest, his eye and ear ever on the alert for some object, however lowly, through whose veins the blood or sap runs freely in the race of life. The midge, the shrew; the protococcus and the lichen, each has a void to fill, a lesson to teach in the great book of nature.

Nor are living things the only objects which should attract the attention of the naturalist. Each pebble has a past; each tiny grain of clay or soil a future. The boulder on the hillside, how came it there and when? 'Tis but an atom as compared with the bulk of the great round earth beneath, yet 'tis as worthy as a theme of thought. The shadows, as they come and go,

have cause; the winds, a reason for their being, and the clouds a master, in the sun which rules us all. Thoreau did "sift the sunbeams for the public good," and "milk the earth and sky for nutriment" for the fantasies of his brain. In this was he wise beyond his time; a naturalist without a peer.

The little volume here offered was, with the exception of the last two articles, written in an old woods-pasture in Central-Western Indiana. During the summer months, for a decade of years or longer, it has been my custom to spend some of my Sabbaths, and, at times, a few of my week days, in visiting at an old farm-house which is located in that region. The pasture in front of the house stretches for a half-mile or more adown the valley of a purling brooklet. Ever does the song of bird and ripple of water; the waving tree-top and the mingling of sunshine and shadow invite and lure me on; so that in the old pasture a goodly portion of my visiting time is passed. There have I met the majority of the lowly forms of which mention is made in the pages which follow.

A book, like a man, must have a name; some handle by which it can be grasped; though, as with the man, the handle is a very minor part. The genii of inspiration dwell in varied places; sometimes in a garret, a back yard, a cave, a prison cell, a romantic valley. Those which caused my brain cells to evolve the facts and fancies herein given dwelt, for the most part, beneath some old gray boulders in a shaded nook on a sloping hillside. Stretched out beside those boulders was my favorite resting place; and there the majority of the sketches were penned. They were in part, dreamy meditations, fanciful musings, or day dreams; all of which are given, by those who know, as definitions or synonyms of "reveries." A combination of the home of the genii and the character of the work which they inspired, was therefore, made, and the name "Boulder Reveries" resulted. That the reader may find a few grains among the chaff, a few facts among the fancies, is my fondest hope.

INDIANAPOLIS, IND., JULY 15, 1906.

Boulder Reveries.

"You only need to make a faithful record of an average summer day's experience and summer mood, and read it in the winter, and it will carry you back to more than that summer day alone could show. Only the rarest flower, the purest melody of the season, thus comes down to us." —*Thoreau.*

I.

Aug. 28, '98.—To-day that great inverted bowl, whose rim on every side comes down to meet the earth, is blue—blue without a tinge of white or gray. I am seated on a grassy slope in an old woods-pasture. No sound of human voice or human device breaks upon my senses. Trees, those highest and noblest forms of mute vegetable life, surround and shelter me. I rest beneath a sugar maple. Another maple and a blue ash are on my right. A black oak, tall and slender-bodied, rises in front; while on my left a sturdy white oak—the rings of a century within its bole—out-tops them all.

At my feet, between me and the black oak, are two dark gray, moss covered boulders, older, far older than this sloping hillside in which they are partly buried. Other boulders of granite, diorite and kindred igneous rocks, lie farther down the slope. How many thousand years ago were they dropped here? Agassiz, the wise, told how they came, but even he could not tell when.

Would that I were on the parent ledge from which the two at my feet were broken; that ledge which, hundreds of thousands, aye, millions of years ago, was pushed up by force of heat from the earth's interior, then acted upon by wind, rain, frost and the potent oxygen of the enveloping air until its edges were rounded and its sides weatherworn, lichen bedecked, moss covered. Then the glacier, mighty in its strength, all powerful in its onward motion, came to be. Reaching the old ledge of diorite, it crumbled its exposed and partially decayed edges into a score of pieces. Bearing on its bosom of crystal these giant fragments of broken stone, it brought them on a journey—perhaps ten thousand years in

time and less than five hundred miles in space—to the square yard of mother earth at my feet where now they rest. O the changes which have come to pass over the surface of this world of ours since then! Empires have risen and have ceased to be; empires, that is, of man's making. Perchance even he has become possessed of reason and of speech. Cæsars have ruled. Christ has risen from the dead. Mohammeds have given us their creeds. Aztecs, and sachems of many tribes have proclaimed their power and vanished from the earth.

The forces of nature have meanwhile gone on in their slow, unceasing action, carving out valleys here and there—raising mountains from old ocean's depths—changing stone into earth, earth into plant, plant into animal life. Unmindful of man they do their duty. Æons of time they require, but the results of continued action are all powerful. Persistence, patience, stick-to-itiveness are grandly exemplified in the workings of nature. A million years to Nature's God is as but a second in the idea of time as known to man; yet the latter, made proud by

his own power of reason, thinks himself the ruler of the universe. Harnessing the forces of nature, he compels them in many places to undo their deeds of the past and create new scenes, new diversions, for his pleasure and his artificial needs.

Give to nature time and the free working of the forces at her command, and worlds can be shaped, continents builded, and chaos changed into cosmos. What she does is on a magnificent scale. Man can but imitate, elaborate here and there, fit for his æsthetic tastes. His power is puny, yet he thinks it great. He can not destroy a single iota of her matter or her force. In the twinkling of an eye she can hurl him and all his kind into eternity. Gentle must be his means to deal successfully with her—velvet his touch. Led like a lamb, here and there, can she be controlled—but driven, never.

II.

Aug. 30, '98.—We live and we realize it not. The years of manhood roll by as swiftly as the fortnights of youth. Sixteen years ago next

week I saw for the first time these hills and water-worn vales; these trees and moss-covered boulders. Sixteen years—a fourth of a lifetime! What changes have been wrought! What ambitions have been quenched! What undreamed of happenings have come to be!

Sanborn, in his "Life of Thoreau," which I have just finished, deals too much with the genealogies of the citizens of Concord, treating of them as far back towards Adam as he was able to find data. I draw the line at genealogies. What matters it to me who was Thoreau's, or Emerson's great grandmother on his father's side, or great uncle on his mother's side? What I looked for and desired in the book was an account of the personality, the daily life, the deeds of Thoreau himself, not those of his ancestry.

What matters it to me who was my great, great grandfather? I do not even know his name or his vocation. I only know that somewhere he existed; else this body and soul of mine would not have come together. Perhaps I should revere my ancestor for the simple reason that if he had not been I would not be. The

matter, the energy which go to make the ego would be somewhere, but I would probably be lacking.

For the same reason that I care little for genealogies I care little for fossils; except in so much as they teach me something of the past life of the earth. Rather would I at any time study the living plant or animal, with the sap or blood running riot through its veins, than the remains of some ancient flora or fauna whose protoplasm was congealed ages ago by the demon of death. There is life enough on earth, full of interest in action and in habit, for study by mankind, without so many men spending their best days in poring over the critical points of some crinoid which ceased to exist a million years ago.

The glory of the morning-glory, how it entrances me. 'Tis a flower whose beauty is without a peer. On these August morns the bell-shaped, blue, pink or white flowers peep out from scores of openings amidst the vines, which clamber over fence and shrub, and nod a welcome as I appear. The eye of each flower is set

deep within the tube of the corolla and beams out at me with an expression of most tender good will if I but deign to give it passing notice. They are goddesses of the night and early morn —born in the former, reigning in the latter, and closing forever their evanescent eyes before the fiercer beams of the noon-day sun. God pity him who sees no beauty in a wild morning-glory, fresh from its natal bud.

Lying on my side as I write, I am suddenly startled by a rustling noise, similar to that made by a huge snake crawling rapidly. I glance up and see a large marmot or ground-hog within three feet and coming swiftly on. I have been motionless and he, doubtless mistaking me for a log, is about to crawl over me, when involuntarily I throw up my arm and utter a "shoo," as though to frighten away a flock of chickens. He is as much startled as I, and stopping short, eyes me for a moment, then turns tail and runs as, methinks, a marmot never ran before. Over the slope out of sight he goes, and probably to the shelter of his den. How I wish I could have repressed that involuntary movement and note

of alarm. It would have been an experience of a lifetime to have had a ground-hog crawl over me.

Within ten minutes a fox squirrel comes slowly leaping along, stopping every few moments to glance around in search of some imaginary enemy. Jumping onto a log, it crawls up a projecting limb, and pausing at intervals of a few feet, seems to bite into the limb and then rubs the sides of its head over the spot which it has bitten. This is repeated a half dozen or more times, and is to me a hitherto unnoted and unexplainable action.

By taking a day, from the first appearance of dawn until darkness, and reclining motionless in some secluded spot of this old pasture, one could doubtless note many interesting facts concerning the habits of birds and mammals. Perchance, too, a turtle or snake would come his way and, deeming him a new made, harmless denizen of the woods, make free to open to his gaze some hidden secret of its daily life.

III.

June 17, '99.—'Tis the heart of June-time, with a blue sky, a balmy breeze, a glorious sunshine. 'Tis a day when the turmoil of the city, the jar and noise of moving train and tram-car, is far away; a day when the moss on the boulder beneath my head is soft and grateful to the touch. Let peaceful quiet pervade. Let the clear ringing call of the cardinal be the loudest note which greets my ear.

As I sauntered slowly hither, I noted by the pathway a clump of curled dock[1] on the stems of which were hundreds of dark, leaden-gray plant-lice, or aphids, their bodies swollen with the juices they had imbibed or rather sucked, from the soft succulent stems. Over the dock there crawled rapidly numerous large, black ants which, as they moved, were waving their antennae swiftly to and fro as if in search of something lost. As I looked, an ant approached closely one of the thicker-bodied of the lice, when the latter turned its abdomen upward and exuded therefrom a drop of liquid, clear as crys-

[1] *Rumex crispus* L.

tal. With a single lap the ant swallowed the morsel of "honey-dew." Thus is the juice of dock transmitted through the body of the aphis into the stomach of the ant, undergoing, doubtless, on the way, a chemical change which renders it sweet and to the especial liking of that insect. Wonderful is the relationship thus existnig between the inorganic matter in the soil, the plant and the two insects. Interesting the process by which that inorganic matter is fitted for the food of the higher form, the ant. Varied the changes which matter must undergo as a part of the earth and the dwellers thereon during its unceasing round of existence.

Two robber flies a courting. The female sits motionless on a twig. The male, poised in air a foot or more behind, holds his place seemingly motionless, yet the resonant hum of his wings proves that only by special muscular effort he sustains his poise. Ever and anon he makes a sudden dart at his longed-for mate, but she, coy as maiden fair, as suddenly eludes his grasp and settles on another twig a yard or more away. This action is kept up for ten or more minutes,

when the male gives up and, settling down in the spot which his loved one has last vacated, rests for a time his wearied wing muscles, before starting again after the elusive object of his desires.

From somewhere the odor of red clover, ever welcome to my nostrils, is borne. It is, to me, the most pleasing fragrance of the month of June. It always brings to mind ripening wheat and the firefly's glim—a world of green and a bright sun shedding its glory thereon. It causes me to draw long inhalations, to inflate the nostrils and gather in greater volumes of the scented air.

Wherever it abounds the red clover is the sign of progressive farming. It enriches the soil more than any other known plant. It causes the country fields to literally "blossom as the rose." It bears its burden well, furnishing pasture for summer's stock, hay for winter's feeding and, above all, beauty and fragrance for the true lover of nature.

More than any one thing a clover field, in the heart of June-time, begets in me a longing to be

a farmer, or at least to be the owner of a farm. The odors of clover which I have gathered in the years gone by have all belonged to other men. I have stolen them, but they missed them not. As long as a man steals only that which is impalpable and which is never missed he can not be called a thief. I, perchance, during the summer months, gather more real wealth from this old woods-pasture, with its maples and oaks, its prickly ash and iron weeds, its blue-grass and boulders, its song of bird and odor of clover, than does the lawful owner; yet the wealth which I get is not to be measured by the money of man.

IV.

June 24, '99.—

I would an idler be,
Roaming from shore to shore the sea of life;
Full of the joy of hope and love,
And free from strife.

Such was the theme or vagary—call it what you will—which ran riot time and again through my brain, as I this morning trod the old familiar pathway leading to this, my boulder hillside.

The aroma of ripening grain greets my nostrils—the sound of the reaper my ears. The wild raspberries are turning purple in the June sunshine. The elder blossoms are fair and white in the full beauty of their bloom. To-day I wish the free air of heaven to blow unhindered against my brow. Let it be undammed by any device of man. Let it surge and roll about me, bringing new energy into my being.

The Neonympha butterfly[2]—nymph of the woods—flits beside me, fluttering just above the blue-grass tops or even between its stems; coming at times so close that I could reach it from where I sit. This little wood-brown fly is dull in color but quick in action. It flutters with a short, jerky movement ever close to earth; seeking either a mate or food-plant to its liking. Rest, it seems to know not. I have taken them on the sand dunes of Lake Michigan and amidst the pine woods of Florida, but have never seen a specimen alight for more than a few seconds at a time. During the twenty minutes I have watched the one before me it has paused but

[2] *Neonympha eurytris* Fab.

once, and that for a single instant, amidst some dead leaves, on a sprig of clover. As it rested, motionless, the question arose, which was the leaf—which the wood nymph? Thus was protective mimicry exemplified.

The bloom of elder, of trailing arbutus, of pond lilies—how their sight and odor, especially the latter, recall the past! When I see and scent the elder blossoms I am a boy again, gathering wild raspberries around old stumps and in the angles of Virginia rail fences; gathering wild berries with a heart full of hope, of longing for a nobler, higher calling.

When I see and smell arbutus blossoms I am a youth, with hope still strong, but its twin brother, ambition, stronger; impelling me ever "onward and upward"—a college youth, opening day by day some new leaf of the great book of nature—conning its pages with renewing interest and a growing love for its varied objects.

When I pluck the white pond lilies and scent their fragrance I am a man in years, if not in deeds—a man teaching or trying to teach childish minds somewhat of nature's secrets. I am

wading once again the ponds and sloughs of the Wabash valley, with hope still reigning in my heart—ambition still stirring in my soul. Such is the trend of thought—of revery—which the scent of a cyme of elder blossoms begets in the brain of a midle-aged man on a morning in June.

V.

July 4, '99.—To-day the eagle screams—the bunting waves merrily in the breeze—the cannons belch forth fire and booming sound—the giant crackers explode with resounding reverberation. To-day hundreds will be maimed and scores killed in endeavoring to "fitly celebrate" the natal day of a great nation. To-day, less than half a mile distant, a surging crowd will congregate—has congregated. Fiery words of eloquence will be spoken, extolling the heroes of '76; vaunting the growth of a great republic.

I shun, however, that crowded mass of humanity, and here, beneath the great white oak that spreads its limbs above my boulders—here, stretched out upon the bosom of mother earth—

I celebrate. I listen not to the booming of the cannon but to the warble of the vireo; not to the burst of eloquence from human lips but to the cackling note of the rain-crow; not to the eagle's scream but to the shriller cry of the red-tailed hawk.

Breezes blow balmily up from the southward. Great waves of air beat and surge about me. Large black ants crawl over me, and an occasional wood-tick creeps with snail-like pace along my bare skin—but ant and tick are only fellow creatures of the earth, come to do me homage or to seek what of sustenance they may gain from my veins.

The ants have their nest or home somewhere about the roots of the red oak below me, and they run swiftly over the bark of both it and the white oak; how high I know not—perhaps to the very tips of the topmost branches. Whenever I recline against the bole of either tree, they make free to use my body as a new pathway, roaming over it without seeming fear in search of pastures new. In numbers, however, they are few, and as they never bite I pay little

attention to them; though they cause many an involuntary shudder when they happen to tickle the back of my neck or hand with their rapidly moving legs.

I note in the pathway leading down the slope a slender-bodied wasp, dragging a large green caterpillar, the larva of a butterfly or moth. Watching it closely, I see it finally arrive at the mouth of a round hole or little pit which it has previously prepared in the hard clay of the pathway. Letting its burden down, the wasp seizes it again by one end and backs into the hole pulling its prey in after it. A small piece of earth is dislodged and falls in by the side of the caterpillar, partially clogging the pit and hindering the work of the wasp. With a pair of tweezers I remove the impediment and the larva is dragged down out of sight. Soon the wasp emerges and, flying in a circle once or twice about the opening, it seizes with its jaws a good sized ball of earth and drops it into the mouth of the pit. Two other pieces are dropped in after this and then, standing on its head, the wasp butts them down and rams them farther

in. Several smaller pieces are then brought and crumbled with the jaws; after which, by rubbing its head back and forth, they are pressed down firmly and smoothly. Several minutes the wasp thus works, buzzing continually meanwhile a note of warning, until finally all semblance of the pit with its cached supply of food for future wasp is blotted out.

The jarring notes of a country brass band come across the fields from the picnic grounds, and the cuckoo ceases his cackle—awed into silence by the unusual sound. Methinks that the squirrels, marmots, foxes and birds hereabouts are all listening and wondering—thinking, perchance, that some mighty being with discordant blare is trumpeting forth his notes of challenge and of charging onslaught.

VI.

Aug. 13, '99.—With head resting on the side of the moss-covered boulder I recline in the shade of the oak and maple and gaze heavenward into the illimitable depths of blue. Soft and balmy, pure and innocent, that ether.

Within its space are floating the dissipated energies of millions of animal and vegetable organisms. It is the common receptacle into which pass the unintercepted heat and light thrown off, not only from our sun, but from the suns of all other solar systems of the universe.

Of the vast floods of radiant energy which, for centuries untold, have streamed forth from our sun in the form of light and heat, but an insignificant fraction has been intercepted by its satellite—the earth. Of the minute portion thus arrested, perhaps a millionth part has been caught up by its plants and used directly in their growth. Stored in the protoplasm of their cells, it has there done its work in the building up of wood or stem, of grain or fruit. In part transmitted to animal life, it has changed from potential to kinetic, and through brain or muscular action has then gone forth as useless heat into that ocean of ether whose dimensions are too great for the human mind to grasp.

There all energies are equal—all are valueless. The power of doing work is forever gone. There the energy which thought and taught,

which hoped and planned—the energy of a Newton, a Franklin—the wisdow of a Solomon —the genius of a Shakespeare—is mingled with that which has given action of muscle to the serpent or power of song to the nightingale.

A small gray moth flutters to the grass beside me. In a few short weeks the potent energy, with which now it may move, or see, or smell, will have passed on into the ether beyond. A giant oak spreads its branches above me and its leaves shelter me from the all-powerful rays of the sun. Through the stomata of those leaves the rays of heat and light are passing and are being stored by the action of the chlorophyll and protoplasm to be transmitted to bole and branch, to twig and acorn. In a few weeks that action will cease; the leaves will wither and fall and the energy which they now possess will pass into the great blue o'er-hanging dome. Thus with the power of work or thought possessed by all animate life; each form must yield to the scythe of time and become forever a creature of the past.

Nature—association with plant and animal—

with odor of flower and song of bird—is his who will but have it. From the city thousands could go once a week and spend a few hours or a day; but the brawl, the clamor, the artificial pleasures of man, are of more consequence in their eyes. They, therefore, remain, shut in, ignorant of asters, golden-rod, and blue gentian—noting not the beauty of the berry of the dogwood and wahoo—tasting not the luscious flavor of the papaw and black-haw—hearing not the entrancing warble of the indigo bunting and white-throated sparrow—feeling not the ripple of the unchecked breeze upon their brow—quaffing not the pure, clear water of the wayside spring—inhaling not those copious draughts of health-inspiring oxygen, which come to him who roams the woodland pasture or country byway in search of the companionship of nature. Healthy his form, sparkling his eye, and when moving muscles clear his brain and good, pure oxygen incites his cerebral cells to vigorous action—brilliant, at times, his thought. If the average man would but put aside for the time his lust for gold, and for a few hours each week

become a devotee to nature, his life might be many fold the better and his contentment greater.

VII.

Sept. 10, '99.—A perfect autumn day, with the temperature of that genial kind which leads one to lounge on grassy slope or shelving bank and dream, and plan and ponder. On such a day there often arises in my soul a temptation to leave behind the past—to throw aside all ties of kin and friendship—to launch all hopes, all fears, all possessions, upon an unknown sea and trust to fate for luck. 'Tis the same feeling that doubtless inspired the stanza:

> "I've bartered my sheets for a star-lit bed;
> I've traded my meat for a crust of bread;
> I've changed my book for a sapling cane,
> And I'm off to the end of the world again."

The odor of crushed prickly-ash leaves is with me—pleasing, penetrating—unlike that of any other plant. As I drive or walk along streams or through low ground woodlands in early autumn, two odors often come to me—two which are always welcome. The one, that of the great

ragweed or horseweed, is exhaled readily, bounteously, and to all comers. To some persons it is doubtless disagreeable, but to me it is rich, strong, powerful; fit odor for the gods.[3] The plant itself is one of the largest of our annuals, often reaching, in rich alluvial soil—the kind in which it delights—a height of 14 feet in a single season.

The other odor, that of prickly-ash, is known only to the saunterer who has time to pause and crush the leaves or fruit—as I, this morn, have done—thus setting free from their glands a charming oily fragrance, which perfumes the skin for hours.

The alarm note of the chipmunk or ground-squirrel—short, sharp, oft repeated—comes to my ears from the valley below. A rustling of twigs, and the occasional dropping of a half-eaten acorn betokens the presence of his cousin, the larger fox-squirrel, in the oak beside me.

The wood pewee and the red-headed woodpecker are near, the one sounding his plaintive

[3] The scientific name is *Ambrosia trifida* L.; the generic name meaning a food, drink or perfume which confers immortality.

call; the other using his bill on some resounding fragment of a neighboring snag. The note of the ground cricket, feeble and low, is unceasing.

The falling of the acorns becomes more frequent and, placing aside my notebook, I step beneath the oak and gaze upward through its maze of foliage. I soon sight the squirrel, about 30 feet up, sitting on his haunches and enjoying his meal of mast. He sees me, too, and for a time is silent and suspicious. Then, regaining his courage, the saucy little rascal darts along the limb and down the bole of the tree to a branch about ten feet directly over my head. There he snarls and scolds and jerks his tail in unison, staring meanwhile at me with eyes alert and ears erect. I remain motionless and he keeps up his noise and tail gyrations for at least ten minutes, until he has attracted to the tree-top some inquisitive crows, and I am tired of the up-gazing. As I move back toward the boulder he scampers upward, scolding on the way, until he reaches a dizzy height in the topmost branches. There he stretches himself out

flat on a horizontal limb and begins a quiet period of surveillance over my movements. Sunday it is, and no gun visible, which facts, perchance, have given him courage to come so close and scold so defiantly at my intrusion on his domain.

The fruit of the flowering dogwood[4] has not yet assumed that bright scarlet hue, which will render it so noticeable and attractive a fortnight from now. It, and those of the bitter-sweet, the wahoo and the strawberry bush, rank foremost in beauty among all wild fruits of our autumn shrubs and vines. When the hoar frost is late in appearance, the leaves of both dogwood and wahoo gradually ripen until the former are a bright scarlet and the latter a beautiful pinkish-purple in color. The pendent fruit of the wahoo is of the same hue until the touch of the frost causes it to open and expose the scarlet arils.

That squirrel is the most inquisitive one of its kind I ever met. I hear a rustling just over my head and, glancing up, behold him on a

[4] *Cornus florida* L.

branch not over six feet directly above. He is peering down at me and bobbing his bushy tail in rapid curves. I make a move, and up he goes for 40 feet; then stops again and begins to ogle and to bark. While he chatters and scolds at me I write of him. A few hundred thousand years ago his ancestry and mine existed on an equality, as pre-mammalian forms inhabiting some remote corner of the earth. His could not chatter; mine had not an idea of spoken sound or written word. How the pathways of those two sets of ancestors diverged; what environments and what victories in the struggle for existence brought about the changes which caused the descendant of one to become a chattering rodent—of the other a reasoning human—only the ages know.

VIII.

July 15, '00.—'Tis midsummer and as glorious a July day as is wont to fall to the lot of man in this north temperate zone. A cloud at intervals bowls rapidly o'erhead, borne onward by the breeze which, cool and refreshing, comes up from the southwest.

The call of the wood peewee[5] is the most plaintive note of our native woods these midsummer days. Dressed in a suit of olive brown the little bird flits from perch to perch uttering his *pee-wee-ee* at intervals of twenty seconds. His eye is ever open for insect delicacies or for a shadow from the swift moving wings of a sparrow hawk. What does his *pee-wee-e-e-e* denote? Is it a signal of love to a listening mate, or is it the plaintive call of a lonesome bird spirit—a monologue of despair?

The note of the wood peewee always causes a feeling of loneliness in my soul—a feeling of a coming shadow of something dark and uncanny—a feeling closely akin to that engendered when I enter the depths of a tamarack swamp; or when I see the leaves of autumn falling about me—hear the shrill cry of the katydid and dream of the near approaching winter. For I am a human who delights in spring and summer, in sunshine and green verdure. Then only am I an optimist. In autumn and winter, especially on cloudy days, or in the shadow of a

[5] *Contopus virens* (L.).

deep forest, I am a pessimist and one of rank degree.

Even now the shrill call of the harvest fly and the trill of the first green grasshopper throw a pall over my spirit as I realize that all of the spring and half of the summer of another season have, for me, forever gone. For our time is our only real possession on this earth. We may gather and hoard other things but they are rubbish, which only enables us, perchance, to prolong and to some degree enjoy our time. Naked and without a penny came we onto earth. Naked and without a penny do we depart therefrom. What have we then except our days—our short span of years—thereon? Those of us who have reason can use them as we will—for good or evil deeds—for base or noble thoughts—for weal or woe unto our fellow men.

Another bird whose notes are often heard on these mid-July days is the yellow-breasted chat.[6] One is just now making his presence known in the thicket behind me by a series of noises as variable as they are discordant. He

[6] *Icteria virens* (L.).

scolds and chatters, then warbles and whistles, then chatters and scolds again. He is seemingly in several parts of the thicket at once, now here, now there, ever invisible yet ever heard; a ghost-like bird haunting the densest shrubbery, yet making the welkin ring for rods around.

Between me and the clouds a buzzard soars, turning at will in broad circles, yet without the flap of a wing; gliding on and on, seemingly without the movement of a muscle. What is this power which the buzzard, and to some extent our larger hawks, possess? How is the motion begotten and sustained? These are questions which, to my knowledge, are as yet unanswered.

The clouds are low down this morn. They go skimming along as if on some important mission; changing shape and becoming mist or fog-like in appearance as they lower sink. All are eastward bound to meet their brethren on the New England shores or to be condensed as rain on the Alleghanian slopes. Methinks, at times, that on the pinnacles or highest ledges of some of those banked up clouds, which often show

white and gleaming in the sunshine of a summer's day, the spirits of departed friends rest and look down upon me. From those vast heights they peer and beckon; bidding me godspeed and successful future if I am in an optimistic mood, or foreboding woe and coming sorrow if I chance to be cast down in spirit.

IX.

July 26, '00.—The day is fit for gods and men. I, one alone, of many millions of the latter, roam in the free air or bask on the green sod of that earth on which such a day has dawned.

The odor of pennyroyal is the first thing I sense as I throw myself down in the shadow of my boulder. The blossoming plant is everywhere abundant in the clayey soil of these woodland slopes; the little tubular, two-lipped pinkish flowers in clusters about the axils of the stems. From the sterile soil its rootlets gather in the elements of the essential oil which exhales the penetrating odor. Within the cells of leaf and stem those elements are combined and, by a

process of chemical assimilation, the oil is there produced. The odor is so strong and lasting that it readily survives the winter and in March or April is, in places where the plant has grown, mingled with that of the earth-mold of spring to form a pleasing fragrance.

I often wonder if birds ever grow old in feelings and have catarrh, twinges of rheumatism, stiff joints and other aches and pains. If so their outward appearance and movements betoken it not. Living as they do a wild and free out of door life, it is to be supposed that, for the most part, they are exempt from such afflictions; just as the voyageurs and trappers of the early part of the nineteenth century are said to have been healthier and longer lived than we who live so much indoors.

The woods are nature's abiding places—"God's first temples"—as Bryant called them. There beasts and birds and bugs abound. There the naturalist goes when he would be alone with his thoughts—alone with God and his handiwork; and yet alone only in the sense that he is away from his fellow-man. In my ramblings through

these old woods, I seek no company but my own. On such a day as this three is a multitude; two, a crowd. By myself I can ponder. By myself I can get closer to the birds, flowers and insects. By myself I can dream dreams of days that are gone—of days that perhaps will be.

A Grapta butterfly alights on the trunk of the red oak beside me and slowly opens and closes its wings several times in succession. Then, unfolding its proboscis or long coiled tongue, it thrusts it deep into a crevice of the bark and sips sap from a cranny therein. What set the red oak bark to yielding sap at this season of the year and how did the butterfly find the fortieth part of a square inch in which its meal was present? Its sense of smell must be very strong.

I pull away a shred of the bark and find a long black elaterid[7] and several other juice-loving beetles; also two or three slender bodied flies —all gathering sap from in and about the same crevice. Red oak sap, slightly soured, is then attractive to numerous kinds of insects on a July "dog-day."

[7] *Melanactes piceus* De G.

Quaint "darkey-heads," or black-eyed susans,[8] members of the great Compositæ or sunflower family, flourish in numbers in the rich alluvial soil of the valley before me and are now in the full prime of their blossoming period. They represent one of many of nature's hardy biennials which spring up anywhere by the wayside and reach maturity in spite of many a mishap. Far different are they from your cultivated pot-plants, which need attention every day of their lives in order to keep their puny forms in some sort of green livery. Such wild flowers are the jewels with which mother earth —the vain old creature—bedecks herself, in order to hide her age and the furrows in her countenance.

X.

Aug. 19, '00.—Whither fate leadeth us we drift. To-day we are here—to-morrow yonder —the next day far beyond. With the pure blue of heaven above, the bright green of earth below —with elbow room on every side—I would wander on and on.

[8] ***Rudbeckia hirta*** L.

The pollen of the ragweed, golden yellow and redolent with its characteristic bitter odor, has colored my clothing as I trudged slowly to this, my haven of rest. From the border of the beaten pathway I plucked a wayside weed. It belongs to the Mallow family and is known as the prickly sida.[9] The pale lemon-yellow flowers always attract me. It is a plant of waste places, such as roadsides, barnyards and the dusty cow-paths of this old woodland pasture. Often trampled upon by man and beast, it yet survives and perpetuates its kind. Scrawny and rough in form, it exemplifies a life of bitter struggle. Bravely it fights its way, raising its head with new vigor after being pressed closely to earth by many a passerby. A poor, down-trodden, homely weed, it possesses certain points of attractiveness which appeal to the botanist's eye.

A syrphus fly alights upon the top of my fountain pen as I write. These are halcyon days for the many species of its kind. They are flower-flies, and feed upon honey and pollen.

[9] From its scientific name, *Sida spinosa* L.

Sunshine loving, they often poise in mid-air on whirling wing and seemingly dawdle away existence. Their banded colors of black and yellow, and tapering abdomen, so suggestive of yellow jackets, no doubt do them excellent service as a form of protective mimicry. When tired of poising they alight on some projecting twig or other object, there resting with outspread wing and often moving the abdomen up and down in a peculiar teetering fashion.

The rich dark green of the foliage of the maple and the oak—the bright purplish red of the ironweed cymes—how they contrast—how they attract! Even the broad-winged katydid calls *by day* on this wooded slope—mingling its note with those of the harvest fly and the wood peewee.

Cannas, calladiums and corn—what a broad expanse of green the leaves of each unfold to the summer's sun. That sun is now setting behind a sea of green—a dense green field of corn. Due to frequent and seasonable rains, it is of that dark, intense green, so characteristic of luxuriant growth. The fervid heat of the past

ten days and nights has also done much to promote that growth. Man cries out against the heat of August days—the maize delights in it. During such a period myriads of heat calories are caught up by the cells of the corn leaves and stored in stem and grain for man's use in those dim December and other winter days, when the current of the earth's blood is sluggish almost to stoppage.

The berries of the pokeweed are in places taking on that rich purple hue which betokens their ripeness. In late autumn they will furnish food for many a fruit-eating bird. The Kentucky boy at work on this farm eats these poke berries when afflicted with cramps in the stomach, claiming that they are a certain cure. The root of the plant is, however, said to be very poisonous. When fully mature, the poke is one of the handsomest of weeds, but it is too common for its beauty to be rightly appreciated. The blood red of the stems and the purplish black of the berries—what typical colors of nature! One often finds the small, shining black seeds beneath logs and stones, where they have

doubtless been carried by mice or shrews. I have sometimes mistaken them for parts of the heads of dead insects.

The tall and handsome pokeweed flourishes best in the rich mold in the corners of old rail fences. Many a plant destined to become a scourge to the farmer ripens its first seeds on his farm within the area of these projecting and protecting fence angles. There, safe from the plow and the hoe, the future weed succeeds in its struggle with its associates—ripens its seeds by scores or thousands and then sends them forth, borne by the winds of heaven or the wings of birds, to other fence corners or fallow fields.

An example of such a pernicious weed is the wild carrot,[10] now very common on the poorer clayey soils of all the Middle-Western States. An alien from Europe, it is only a few years since the first one in this region grew to perfection in some fence corner, unnoted save by the insects which flew about its petals or the birds which, in autumn and winter, sought sustenance from its seeds.

[10] *Daucus carota* L.

XI.

July 14, '01.—It is not that which we dream of doing, but that which we do, that counts. We dream of an unknown future which never comes to be. We hope for a better by and by, for a happiness, a contentment that never is—that never will be.

For several weeks no rain has fallen and the majority of creeping, crawling animal life has burrowed deep or has resorted to the close vicinity of springs and streams, there to be in easy reach of that water which is the prime necessity of the animals of our temperate clime. On turning over a boulder close to the bed of the woodland stream which meanders through the valley before me, I surprised a small worm snake,[11] purplish brown above, pinkish or salmon red beneath. With its sharp head it instantly started to probe its way into the soil, and with such strength did it cling to the earth that I could not pull it loose but had to remove the clay piecemeal from about it before I could get it fully in hand. Then it coiled itself about

[11] *Carphophiops amœnus* (Say).

my finger and gazed at me with that "cold, stony glare" of the serpent which, in larger reptiles, is often said by pseudo-naturalists to fascinate our smaller birds and mammals. After a time I released it and watched it escape, as would an angle-worm, by burrowing its way into the dry soil. What strength of muscle, what elasticity and ease of movement even our smallest snakes possess!

To-day the sounds of crow, of flicker, of zebra bird, of red-eyed vireo, of dog-day locust, of humming mosquito, of buzzing fly and gnat—all break the silence of the air about me. All are resonant with that key-note of satisfaction, of contentment, which most of the lower forms of animal life ever seem to possess. Of all animals, man is the most commonly dissatisfied. He alone strives to store up wealth—other things than a sufficiency of food, shelter and clothing. The lower forms have to look out only for two of these—food and shelter. Given these and, at certain periods, a mate for the perpetuation of their kind, and they go through life content. Is man more civilized, happier, better,

because he has developed other desires, other needs?

"*Live* while you may; die when you must," seems to be the rule of life of most of the lower forms of animals, and perhaps of the majority of the lower classes of the human species. Those who have reached or who have touched the upper planes of human existence seem to be the ones who are the most dissatisfied. Back of this dissatisfaction, in America at least, is the ruling passion—the love of money.

Go into the average small town or city of betwen 500 and 5,000 souls, and that love is the chief thought, the chief idea, cherished by 95 per cent. of the people. A man may go there, a perfect stranger, with only ten cents in his pocket and by the great majority he will be treated as a tramp. No notice will be taken of him. He will go hungry, yea, even starve, tho' his cerebral faculties may be of the highest order. If he possess ten dollars, he will, for a time, be looked up to by a certain class, whose only idea is to change that money from his pocket into theirs, and that as soon as possible, after which he will be beneath their notice.

Let him have a thousand dollars and, when it is known, he at once becomes a citizen of repute —with credit for his daily needs—and on a par with the vast majority of those about him. If his possessions are ten thousand dollars, he is, in a town or city of the size mentioned, a member of the best society—an equal of most other men. But if he be the fortunate possessor of a hundred thousand, he is at once a god, worshiped on every side—a leader whom all revere, to whom all pander—even tho' his knowledge be little higher than the ape's. It is not brain, it is mammon, which rules society in the American towns and cities of to-day.

Is it any wonder, then, that gold, wealth, the almighty dollar, is the chief thought in the mind of man? Is it any wonder that dissatisfaction exists, since only the few possess the plenty, for which all others are striving? If the American citizen would be content with the simple life—satisfied with the possession of the prime necessities of food, clothing and shelter—forget for a time the mad race for pelf and place—content would reign in the habitations of man with

somewhat of the same degree that it does on this glorious midsummer day among the beasts, birds and insects of this old woods-pasture.

XII.

Aug. 4, '01.—How glorious the peaceful calm of mid-morn on such an August day as this. The water in the pools of the stream glides by with scarce the semblance of a flow. The dragonflies, bronze, brown and black, flit lazily up and down the pools. The breeze as lazily comes and goes. Out in the sunlight one can see, at times, the glimmer and tremulous motion of the heat waves—a quivering movement of the air particles. All nature seems at rest.

This year the Indiana farmer can say with truth, "The drought—it has got me." It began in June and for nearly forty days no rain has fallen. The pastures of Kentucky blue-grass are, in many places, as brown and sere as they are in the dead of winter. The corn, usually at this date a dense, dark green, is yellow, shrivelling; its tassels devoid of pollen; in many places its stalks ripe for fodder. Most wild herbaceous

plants are either dead or their foliage is of a sickly tinge. But one, the ironweed, still flourishes in regal splendor—king of the blue-grass pastures—opening now its first purple cymes that they may worship for the remainder of the month that sun whose beams, unhindered by haze or cloud, have caused all else to droop and wither.

The autumnal choir has begun its work early this year. One already hears at night, both in city and country, the long drawn trill—weird and monotonous—of the tree cricket. The first call of the true katydid—a solitary, weak cry—was heard on July 25th, but it has since increased in vigor and number until now it o'ersounds all other notes of the insect chorus.

For years that chorus, beginning about August first and continuing until after heavy frost, has had an enchantment for my ear. I can not refrain from listening unto it. By day it continues in a subdued strain, but in the otherwise silent watches of the night it rises to its full cadence and seems to fill all space. It is to the months of August and September what the frog

chorus is to the first warm nights of March and April; what the bird chorus is to the early morns of May and June. Both frog and bird, however, bring joy to my soul, while the insect brings only an o'erpowering sadness that I cannot fathom. It always calls up a shuddering thought of frost, snow, ice, cold blasts of wind, falling leaves and dreary winter landscapes; which it, to me, presages.

Perhaps it is because I am a special student of the Orthoptera among insects, that this chorus of autumn so attracts my notice. Blot the Orthoptera from our insect fauna and this weird music of nature would almost wholly disappear. The trills of crickets—black Gryllids, brown Nemobids and white Œcanthids—seem to form most of the night sounds, though the note of the broad-winged katydid is the loudest and most impressive. By day the songs of the green grasshoppers[12]—our meadow musicians par excellence—ring out from every swale and lowland meadow in unbroken symphony as long as the afternoon sun shines brightly upon the choir.

[12] The different species of the genera *Xiphidium* and *Orchelimum*, of the family Locustidae.

By day, also, the males of our common grasshoppers or locusts chirrup and call from their grassy retreats, some while at rest, others while winging their way from one point to another, and still others while hovering a few feet above the supposed hiding places of their beloved ones.

Nor must it be forgotten that this insect chorus has for its sole inspiration—love. All of nature's objects which can do so, sing when in love. 'Tis the only way they can rid themselves of that super-abundance of happiness which wells up when the mating passion reigns supreme. The past, with its struggles for shelter, food, existence, is forgotten. The one desire for possession of another of their kind holds sway. If sound—musical or otherwise—can call that mate for which they yearn unto them, it shall be done. And so insects trill and call, day in and night out, feeding little, if at all; the one desire the supreme master of their being.

As with insects, so with batrachians, birds and mammals. Love, passion, are back of—are the chief inspiration of—the frogs' spring chorus and the migrating birds' warbles, twitters

and superb roundelays. The long drawn call of the moose, the roar of the lion in the jungle, the hideous yowls of the night-prowling cat—are but examples of mammalian calls, based upon passion, which are not musical to human ears, however much they may be to others of the kind that give them forth.

Music and song are also the frequent accompaniments of human love-making. A harmony of sound, either instrumental or vocal, or both, is deemed essential at times, or if not essential at least helpful, to the wooings of mankind. And so the flute, the guitar, the mandolin, the organ or the piano have for centuries been, and will long continue to be, the delight of all lads and lassies within whose bosoms love is beginning to bud. 'Tis for the same reason that the powers of song or vocal music, are cultivated more in youth than in middle age. Ah, love—ah, passion—blot thee from existence, and how silent the woodland and meadow, how empty of musical sounds the halls of human habitations!

"Where is the mother ledge of these old erratics?"

XIII.

Aug. 11, '01.—Another week, with all its toils, its sorrows, its hopes, its pleasures, has come and gone forever. It is another dreamy August Sabbath day. I, at present, am dreaming my life away. What naturalist does not dream much? On the way hither I passed an osage-orange tree and its sight, for some reason, called up the dim recollection of an old story of English hedges and the poachers who lounge beneath them. When, as a boy, I read that story, I longed to be a poacher, but now I am content to be a naturalist, and lounge beneath an oak tree at my boulder's rim.

Where is the mother ledge of these old erratics? Somewhere in the Canadian wilderness it reposes. The wide valley before me has been carved out by the meandering stream since they were dropped. The acids of decaying lichens have eaten numerous small pit-holes over their surface. Exposed for centuries to sun and shade, to wind and frost, they rest as they fell—monuments of the mighty ice sheets of the misty past. When my bones are dust and memory of

my existence has vanished from the earth, here will they still rest, their sides bared to the elements of nature, which for centuries to come will beat against them in vain.

The chipmunk swings with skip and jump merrily around the angles of the old rail fences. They are his chosen highways—easy avenues of travel—furnishing him shelter from the fierce rays of the August sun—protection from the keen, searching eye of hawk. A pretty mammal he, and as graceful in his movements as he is pretty. His eyes ever sparkle with the vigor of life—that wild, out of door life, plenteous with exercise—which he lives. How bright and sleek his furry coat; how full of exuberant joyfulness his chuckles of satisfaction as he sits on his haunches and raises his bit of food to his mouth. I envy him his innocence, his wild roaming, free life, his contentment with the little which nature bestows upon him.

On a recent morn I was seated on the stone steps of Owen Hall, one of the State University buildings at Bloomington, when one of these little squirrels ran nimbly up the steps and pass-

ing within six inches of me, darted into a mass of Virginia creeper which was matted against the walls. He had previously dug for several minutes in the mold at the base of a beech tree, nosing or rooting like a pig between the intervals of digging with his fore paws.

How rapidly the old Virginia rail fences—familiar landscape features of a score of years ago—are disappearing. One may travel for miles in places and see but one or two along the roadside. What a change their final passing will make in the fauna and flora of this region. They are the protecting angels of many a form of life. Within the angles of the one nearest me grow the wild cherry, the red bud and the elder. There, too, the wild raspberry canes wax strong, bend over and protrude through the cracks between the rails. The wild rose and the Indian currant are also there as well as many other shrubs and weeds which have escaped the farmer's notice. There, safe from the keen edge of his scythe, hoe or axe, they have flourished into perfect maturity in the years that have gone by. In places the wild grape or

the trumpet creeper clambers o'er the shrubs, their leaves and branches intermingling and forming a dense green covert wherein the katydid lingers, sheltered from the noontide sun, and into which the thrush or vireo dodges to escape the clutch of the down-swooping hawk.

Within the angles of the crooked way of that old fence what generations of bumblebees, bald hornets, yellow jackets, snakes, salamanders, field mice, weasels and kindred creatures, have lived, loved and died! How many hundreds of birds have there wooed, mated, nested and reared their young, safely sheltered from the ken of enemy, both winged and furred! Wrens and thrushes, bluebirds and vireos, chewinks and chats, tree sparrows and snowbirds, catbirds and bob-whites—all will lessen in number—will the sooner succumb in the great struggle for existence, when their old time coverts and shelters are destroyed by the passing forever of these old worm fences.

XIV.

Aug. 25, '01.—Once again, and for the last time this season, a boulder reverie. How differ-

ent the scene before me from two weeks ago! Then, all was dry, dusty, brown, parched, lifeless in appearance. Since then the blessed rain, in plenteous abundance, has fallen. How joyfully the plants and animals must have welcomed its appearance. What utterances of thankfulness these old woods must have heard when the drops began to patter, patter in their midst. 'Twas the elixir of life to many lowly forms. 'Twas more potent to them than any medicine of man e'er was to suffering human. It brought new vigor of action to bird and mammal, to reptile and mollusk, to crustacean and insect.

The brown and sere soon gave place to vivid green. The purple cyme of ironweed opened in full splendor to receive the beneficent downfall. Wild sunflowers and golden-rods, early fall asters and eupatoriums—stunted in growth of stem and bud—sprang upward in a trice and soon all nature was being decorated with their blossoms. Where, a fortnight ago, beneath log, chip and stone naught but bare, parched earth met the eye of the searcher, now scores of living

forms are seen. The first stone o'erturned today revealed two kinds of crickets, two of ants, a spider and a myriapod. Beneath a piece of loose bark were snails in numbers, some cockroaches and several beetles. Well do I believe that the lowly among nature's objects welcome rain after such a drought with greater joy than does the farmer whose crops depend largely, if not wholly, upon its coming.

The old farm dog is dead. Long has he been ailing. Blind, deaf, and faltering in step, for months he has lain in the shadow of the house, showing his appreciation of his former human companions only when food and drink were placed before him. His has been a long life of happiness, as length of life and happiness are measured by canine meter. Many a marmot has yielded its life unto him in days gone by. Many a rabbit has sought the shelter of convenient burrow when he has followed too close upon its trail. Many a squirrel has he chased to its den in this old woods-pasture. Joyfully he barked and jumped, vigorously he wagged his tail when, in former years, his young masters came

from the city for their summer's outing; and no one of the family were they more glad to see than he. In vain does one of them, ignorant of his death, call him this day to give him food and drink.

Sitting here and thinking of him and of others of his kind which I have known—and at the same time reviewing our present knowledge of science and of life—I cannot but believe that dogs possess a soul if humans do, and that that soul survives in the hereafter if human souls so survive. Rather would I meet and greet old "Bep" than scores of so-called humans who, at times, hasten to meet and fawn upon me because they have some favor to ask. His was a greeting with no such end in view. 'Twas a greeting of heartfelt joy, of pure comradeship. Long may his memory remain green. Peacefully may his bones rest. Kindly may his soul be treated in the "great hereafter" where millions of his kind have preceded him, mourned by some master left behind but soon to follow.

Almost every log or stone, when upturned, reveals a trace of some tragedy enacted beneath

its shelter. It may be the elytron of a beetle, the chitinous skin of a grasshopper or cricket, the moldering wing of a moth or butterfly or the broken shell of a snail. It may be one of a thousand or more different things, but it shows where the life of a weaker went out in order that a stronger might survive. It often shows the exact spot where the deadly struggle took place; where mouse or shrew, or mole or snake, or some carnivorous insect pounced upon some creature lower in the scale of life. 'Tis nature's way, and here beneath these logs and stones, as well as out upon the great wide plains, the battles are fought and won; the weaker ever doing its utmost to escape or to repel the attack, but finally yielding up its only possession—life—in order that the stronger may gain sustenance and energy to prolong its existence. The human tragedies which attract the attention of mankind and are heralded far and wide in the daily papers, are a thousandfold fewer in number and often less atrocious than those, mostly unknown, which here take place—that one of the participants may survive and beget its kind upon the face of earth.

XV.

June 5, '02.—'Tis June-time again, knee-deep in Kentucky blue-grass—June-time and the ceaseless trill of the seventeen-year cicada sounding in my ears—June-time, warm and sultry with a thunder-storm approaching from the northwest, and with banks of heavy white clouds scattered here and there in the blue vault of heaven.

The iterated and re-iterated *phar-r-r-r-r-h* of the cicada is everywhere. For sixteen years they have been silent, buried beneath the bosom of our common mother. This one June, then, let them resound their cymbals to their heart's content. Let them call their loved ones to their sides and enjoy to the utmost the few bright days which fall to their lot in the time of their perfect life.

A great red-eyed, smoky-winged dragon alights on my knee as I write and comes crawling slowly upward. It is a female cicada seeking some mate whose clarion call-note is being sounded in the branches of the oak above me. I pick up the intruder and give her a flip into

the air. She takes wing as she rises, and with slow ungainly flight mounts higher and higher to the limb on which her future mate is waiting.

Myriads of the husks or old coats of these locusts are on the leaves and branches of the shrubs in this woods-pasture, or on the boles of the rougher barked trees, especially those of elm and maple. On one bole I counted 142 within 15 feet of the ground. On some trees I can see them 30 feet above the ground, especially on the sides of the larger limbs, three or four feet out from the main trunk of the tree. About one in every 20 seems to have died while trying to shed its coat, and I find them dead or dying while half-way out.

On the way hither a number of hens and ducks were noted in the midst of the woods, far away from their accustomed haunts; there attracted no doubt by the abundance of fat, juicy locusts, many of which are still emerging from the ground, though the majority have, e'er this, come forth. The fowls doubtless wonder at the new dish which nature has prepared for their

delectation. They may be said to be literally "feasting on the fat of the land."

A twig, a foot or more in length, bearing a score of dead leaves and a half dozen undeveloped acorns, comes fluttering down from the branches above, strikes my shoulder and falls to the ground. It is one of thousands which will soon be seen hanging brown and lifeless from the rim of every oak, beech and maple which skirts the denser portions of the woods, or which stands isolated in any degree from its fellows. It has been seventeen years since the like was seen. Not for seventeen more will it be seen again, for these twigs are the receptacles in which the female locusts are depositing the eggs of their future progeny. By stripping back the bark of the one just fallen the eggs are plainly visible. Whitish, oblong and overlapping, they are packed neatly in a double row. In a few weeks after reaching the earth they will hatch and the minute larvæ will begin their burrowing into those underground cavities where they will reside for more than a sixth of a century. What causes many of the twigs in which the eggs are

deposited to die and break their hold upon the parent tree? Is it some subtle poison which the insect secretes in them during oviposition, or is it the mere weakening of the fibers by the entering ovipositor? Most likely the former, for the wood seems brittle, as though dead for a long time, whereas, less than a month ago, the twigs and leaves were in the full power of their summer's growth.

The living locusts, casting their old suits, appear in the new which soon dry and show the perfect stage—the stage when bright livery and music lead on and up to that union which perpetuates the race. The love calls, loud, clamorous, competitive, are heard on every side. Each bush bears several pairs of ardent wooing lovers.

Three days of the past week I spent with the gold hunters and diamond seekers of Brown and Morgan counties. There I, too, panned gold from amidst the pebbles and sands where it has lain for centuries. I proved its presence in spots where I have long hesitated to believe it present. I felt, for the time being, that enthusiasm, that expectation, which keeps gray

haired men long hours at the stooping toil; for may not the next pan disclose the long-looked-for nugget of nuggets, the long sought for diamond of diamonds? It is more than a search after the mere yellow scales for their own sake. With the pure, bracing, free air about them, with the clear rippling water at their feet, with the forest clad hills rising green and beautiful on every side, theirs is a life of freedom, tempered with enough of expectation and hope to render it both exhilarating and fascinating. When in the future I have nothing else to do, I, perchance, will become a gold hunter in June-time among the hills of Brown and Morgan counties.

XVI.

July 6, '02.—I started alone this morn for my chosen rendezvous—the moss covered boulder on the woodland slope. There I had an appointment with the squirrels, the marmots, the ants, the crows, the jays and all their kin. There I was to meet certain representatives which they were to send, and hold with them high communion on this peaceful Sabbath day.

I started alone, and alone I wished to be, alone with my thoughts and the denizens of the woods.

Alas, however, I had a follower, and I could not well forbid his company. I knew that when the delegates to the appointed meeting saw him they would fail to appear, for heretofore they have met me alone. Two, unto them, is a crowd of which they are suspicious. It is over-awing in numbers. With one alone will they enter into communion. For that reason my account of their sayings and doings this day is brief. From the far distance only did any of them make known its presence. At long intervals one would signal to me that it was ready to meet me alone, but that it would not come closer while I had a companion.

After a time of useless waiting I rested my head on the boulder, let the breezes fan freely my brow, and slept. Occasionally I heard in my dreams a crow or a jay bewailing in harsh tones the fact that the appointed service could not be held. Occasionally I felt, or dreamed that I felt, a large black ant run over my face or down my neck. Finally I awakened with a

start. My head was still resting on the gray boulder. The breeze was still fanning my brow. My self-appointed companion was still sleeping.

Blow, breeze, blow. Waft ever, free pure air to my nostrils—air from the southland, from the Gulf—where the sea rolls and surges in constant fretful motion. Rolls and surges, as does many a dissatisfied human soul because it cannot break the bonds of poverty and go forth into the great wide world, a seeker for fame, for fortune and for love. Ah, those three things—fame, fortune, love; how the desire for them rankles in the bosom of all humans who have ambition! How few ever gain and hold all three! Fame may come and fortune linger, as it oftentimes does with the great inventor, the great explorer, the great commander. Fortune comes and fame is absent, as to the miser and the millionaire. But love, the greatest of all, comes often; comes and brings that contentment which is the most precious possession of the human soul. For it man will defy sun and tide; cross desert plains or climb the ice-kissed peaks of distant lands; will toil year in and a

lifetime out to provide food, shelter and clothing, that a chosen companion may share with him these three necessities of life. Thousands are content in doing this where one toils for fame, where ten toil for fortune. Measured, therefore, by the standard of numbers, unto whom it yields contentment, love is far more potent than either fame or fortune.

Of the two most important days in a man's existence, he remembers absolutely nothing. One is the day on which he is ushered onto earth—the other the day when he departs therefrom. His first articulate sound is a plaintive cry for food; his last is often a more plaintive appeal to God. With a mind as blank as the unwritten page below—with a body as naked as an iceberg is of vegetation—helpless and innocent he faces life. The day of his birth can be, to some extent, prophesied. That of his death no man knoweth. The only thing which he ever really possesses is the interval of time between these days. That is his to do with as he listeth. For good or evil can it be expended; for the up-

lifting of humanity or for the downthrow of our existing civilization.

XVII.

Aug. 3, '02.—"Our dreams are naught; our world is but a world of fiction." I arose this morn with the above sentence, half spoken, in my mind. How it came to be there engendered I know not. I only know that I had just awakened from a fitful slumber of many dreams, for I dream much in the early morn of these summer days. And yet, however inspired, there is much of truth in the sentence quoted. Ten years from now most of us who are living can look back and say that our lives of to-day are such as are portrayed mostly in fiction; while we are assured on first gaining consciousness each morn that our dreams are naught.

Last evening a new sound of nature fell upon my ear. Several of us were seated on the front porch of the old farm house, enjoying the cool breezes after a day of torrid, sultry heat. Sud-

denly there came from the woods in front of the house a quick, loud report, somewhat like the noise made by the firing of a shotgun. This was followed by several other sounds, not so loud, as though a revolver was being fired in rapid succession. Two of the city boys, who were stopping at the farm house, came hurrying back from the woods where they had been taking a stroll. They were much frightened, as they thought the noises had been made by some man or animal which might do them injury. My host and they armed themselves with a gun and sallied forth in the darkness, to try and discover the source of the sounds, but they soon returned without success. The noises grew gradually fainter and seemingly more distant, though they continued at intervals for two hours or longer.

On my way hither this morn the source was revealed. A great sugar maple, decayed near the base, but otherwise apparently sound, had given way several feet above the ground, and in its fall had crashed into the top and limbs of a smaller tree. The sharp reports we had first

heard were due to the snapping or breaking of large fibers or bundles of wood while under great tension. The later sounds were caused by the limbs of the smaller maple, gradually giving way after supporting for a time the body of the larger. As the latter slowly settled to the earth more and more of its fibers parted at the break in its bole, and their last despairing shrieks rent the silent air. There was no crashing sound, no thud answering thud, as body of tree met body of earth, for the fall was too gentle, too prolonged for that. On the other hand the sounds were those of a giant in agony, groaning out a last farewell to surrounding companions, as it forever yielded up the life with which it had been blessed.

Other of nature's sounds come to me this August Sabbath morn. The stridulation of a locust as it rises from beside me—the wooing notes of the green Orchelimum from the dense marsh grass in the valley below—the harsh *caw-caw* of a trio of crows, seemingly ever present 'neath summer skies, midst wintry winds—the calls and chatterings of the red-head and the

flicker—the notes of jay, of vireo, of chat, from the leafy coverts along the old rail fence—the distant scream of a high soaring hen-hawk—the droning of a bumblebee hovering above the first opening flowers of the ironweed—the soughing of the breeze through the branches of the maple above my head—the continuous calls and counter-calls of a flock of turkeys out foraging in this woodland pasture—all are mingled and reach my ear in a continuous medley. At times, however, a brief respite is offered and the blessed August silence—that silence deep and pure which nature can offer on a perfect midsummer day—enthralls me and begets that peace of soul, that contentment of mind, which nothing can enhance.

Nor, while writing of sounds, must I forget the serenade of that band of katydids about the old farm-yard on yester-eve. They seemingly tried to outdo themselves for my benefit. But to them I was a nonentity—an unknown being. No thought of me or of my attentive ear lurked in or passed through their brains, as they clashed their cymbals in every shrub and tree around

the old farm-house. One idea alone possessed the minds of the male musicians. That idea was love—passion—"that greatest thing in the universe." Long and loud the cymbals sounded, each shuffle, each note, doubtless accompanied by the wish that the next would call from the skies, from the branches above or about them—from anywhere, it mattered not—one of their form and kind. One to whom they could "whisper sweet nothings"—one whom they could caress tenderly with long antennae—one whom, in time, they could clasp lovingly with their slender limbs and forget cymbals, calls, skies, food, earth, everything, in that long embrace which to them is the acme, the one, the highest object of their mature existence.

The serenade continued thus, almost unbroken, from dusk till dawn. A serenade it was in truth—a song of love—of passion, poured out to the listening ears of the other sex. At times a single player dropped out of the chorus. His work, his love calls had not been in vain. From some leafy retreat, where she had been hidden by day, a lady katydid slowly

emerged and, entranced by the song—by, to her ears, the tender wooing notes—drew nearer and nearer unto the charmed circle whence the cymbals clanged and shuffled. Their notes became less vigorous. More softly they fell upon her ear, until finally, as she coyly advanced, they ceased and the caress of the antennae took their place. The other musicians noted the absence of one of their chorus, and sounded their drums the louder, but for most of them their labor was in vain. Many of them doubtless go through life unblessed by the presence of the gentler sex, clanging their nightly calls from mid-July to the coming of the hoar-frost, and to its biting nip finally succumbing, possessed by the thought —if a katydid can think—that this earth is a desolate and cruel abiding place for such as they. So have the most of bachelors—human and otherwise—doubtless thought, as in the past they yielded up the ghost.

XVIII.

Aug. 10, '02.—The Sabbath peace is once again upon the land—the peace and quiet of a country life. The sky is hazy but the tempera-

ture of that ethereal mildness which is most pleasing.

An hour ago a tragedy broke the quiet of this pastoral peace—a tragedy of nature. Walking through the old farm garden, where grow many fruit trees, I discovered a cow snake[13] stretched out on the limb of an apricot tree, some six feet above the ground. After watching it a while I gently pinched its tail when it doubled back and bit its own body, then fell to the earth and started slowly away. On heading it off, instead of coiling and then striking, as is the custom of most of our reptiles, it curved its body into a close coil with head beneath and remained motionless. Although I pushed and prodded it gently with toe and stick it would not uncoil.

Wishing to show this unusual habit to others I carried it on the end of a stick to a bare spot in the yard, where, when dropped, it immediately resumed its coiled position with head hidden. At this juncture a fox terrier came on the scene and immediately began barking at the snake. The latter finally raised its head, but

[13] *Coluber obsoletus* Say.

did not offer to strike, though it vibrated its tail in rapid rustling motion, after the manner of a rattler. The dog, gaining courage, finally seized it by the tip of the tail and ran across the yard, all the time shaking it vigorously as it would a rat. When finally dropped the snake's defensive instinct was aroused and it quickly assumed that loose, half coil or fighting attitude, which would enable it to strike most viciously. It followed with gleaming eye every movement of the dog and whenever he approached close enough, would strike with full force, while the dog would dodge back and bark the louder. Finally a second and larger dog joined in the attack. Between them they diverted the snake's attention in such a manner that the large one was enabled to seize it by the mid-body and give it a savage crunch. The small dog, not to be outdone, again seized it by the tail and went galloping across the yard. The fighting vigor of the snake was now about gone and it soon succumbed to the attacks of its canine enemies. It was about four and a half feet in length and when first attacked by the dogs gave out a very

"It quickly assumed that loose, half coil which would enable it to strike most viciously."

disgusting odor. This is perhaps its most efficient means of defense.

While I was indirectly the cause of this tragedy and a witness to it, my sympathies were wholly with the snake. I protested against the dogs being allowed to worry it, but my host claimed that he had recently found two of these snakes in a hen's nest, and that one of them had swallowed four of the eggs. He had therefore sworn vengeance upon all cow snakes, and this one was destined to be a martyr to its kind. I could but plead, and that vainly, for the reptile's life, and was sorry that I had not left it peacefully sunning on the apricot limb.

From the boggy ground along the stream before me comes the iterated chirp of the mole cricket, loud, clear, resounding. From a greater distance comes an answering call, which is more rapid and of a purring nature. I try to time the notes of the first, but find it impossible, as each time I get mixed about the sixteenth to eighteenth point. I should judge, however, that they run about 120 per minute. I have heard these crickets in many portions of the State and

have seen their mole-like burrows in more. The latter are especially common in the sand along our larger streams and about the margins of the northern lakes, where they may be readily traced for rods. Occasionally, but not often, the cricket is seen above ground, ambling along in a rapid but peculiar gait. Beneath one chunk, half buried in the sand, I once unearthed a colony of five; and the young by scores are often caught while seining minnows, as they burrow in the soft mud beneath the shallow water close along the shores.

Last Thursday I saw, for the first time, the lilac petals of the purple fringed orchis, in the borders of a bog in Steuben County. I bowed the knee in reverence before its entrancing beauty. How can the mud and slime of these northern bogs be transformed into such a flower as this? How can the spotless white and the fragrance of our water lilies come from the black, ill-smelling ooze of our ponds and lakes? Only the science of chemistry and the God of Nature can answer.

XIX.

Aug. 17, '02.—How beautiful the green livery of nature in the country on these mid-August days! The many rains of the season have enhanced the depth of that green, have clothed the face of earth in her most luxuriant garb. Peace, calm, quietude; here, if anywhere, they reign! Not even the droning of a bumblebee breaks the quiet of the Sabbath morn.

After he passes his fortieth milestone, life for every man moves on apace. It is not to be measured by days, but by deeds accomplished. For what are minutes, hours, days, years, centuries? Naught but the inventions of man to serve his own convenience. No calendars there are in the life of the gods. Their time moves on, unbroken and unheeded. I would at times, that I were on some tropical isle with time going on and on but with no means of measuring the years as they sped by; with no knowledge of Anno Domini or B. C.; with no thought of tomorrow, of the centuries past and the centuries yet to be. Only the grave will furnish such an isle, and there no memory or cerebral sense will

be left to give us knowledge of other things than time.

Pennyroyal and ragweed hold their own with the blue-grass on these upland knolls. In places the ironweed nods high above them, its purple cymes now adding a bit of rich color for the eye to feast upon. The brunella blooms along the shaded banks. The bell-shaped, golden yellow flowers of the wood-sorrel[14] and the irregular, pale blue corolla and globular calyx of the Indian tobacco[15] are also seen. These seven are the most common plants now in blossom in this woodland pasture.

The crows call to one another across the valley. Of what do they tell? What messages of love or hate, of good or ill fortune in crow life, go rushing past in the form of sound waves? Do crows and other birds measure time? Yes, but not by a calendar of years and days. While their calendar, like that of man, is based on the movements of the sun, it is far more natural than his. When, after a season of cold, the

[14] *Oxalis stricta* L.
[15] *Lobelia inflata* L.

rays of the orb of day beget a certain degree of warmth on and in the bosom of earth and in the veins of her parasitic creatures, the great awakening, called spring, is at hand. The germs of passion are called into new life; the desire for mating is engendered; and the crow begins to build a nest in which to rear its offspring. Not on a certain day, as measured by man's chronology, not even in a certain week or a certain month, is the nesting begun. It is only when the heat and power of the sun's genial rays have showered down for days that the crow begins to build. It then knows that soon the warmth and moisture of that season which we call spring will envelop the land. By inherited tendencies or by instinct the parent crows also know the allotted time in which their eggs will hatch and in which the young will be ready to leave the nest.

From midsummer on, methinks one day is as another in crow life. They gather in small colonies or communities which in time become an integral part of a larger group. They then have a favorite roosting place to which they re-

tire each eve. In winter they scatter more widely in search of food, but no legal holidays, no weeks or months labeled with the appellation of some christian or heathen saint or sinner is theirs to remember or to record the passing of time. Only the approach of the spring solstice, only the awakening of the mating instinct by the beams of the northward moving sun, serves them as a reminder of the flight of time.

I like to loll on the very edge of a towering cliff, to note the trees as they lean over as if gazing into the depths below—the shrubs as they cling to crevice and cranny—the herbs as they eke out a scanty subsistence from the decaying rocks. Afar off in the valley beneath a stream meanders slowly onward, fed by a spring which gushes up in the rocks. There shadows fall and sunshine glitters, while far above, I, a bit of matter, possessed of the senses of sight, hearing and smell, gaze and listen and sniff the air, seeking for something, not human, o'er which to ponder.

The cliff on which I now rest, not far from my gray boulders, is not towering nor difficult

to reach. It is only about forty feet in height, but sheer and precipitous. The trees and shrubs and herbs grow from or cling to its very edge, but not from crevices in the rocks, for the cliff is composed only of clay and gravel. On its surface, back from the edge, a wire-grass flourishes as the soil is too shaded and barren to support the Kentucky blue-grass. The stream meanders in the valley below and flows at its very base, but the gushing spring is absent.

Down in the valley a marmot is the only form of animate creature in view. Of what is that marmot's brain a thinking, as its owner rests on the fallen branch of an oak? Of its breakfast not yet gathered? Of another marmot, one of the opposite sex, for which it waits? Of its progeny, safely sheltered in the burrow at the base of cliff? Of two things it does not think—of the passage of time—of the eternity which lies beyond. Those are left for animals called humans to ponder o'er. Perchance it scents danger, as did its fellow marmot, which a few minutes ago came running towards me, then suddenly paused, sat upright, sniffed the air, gazed

at me a few seconds, retreated rapidly to the shelter of its burrow.

Strange animals, these marmots, which, now that the foxes have almost disappeared, are the largest of the wild animals dwelling in these old woods. Only to think, the buffalo, bear, panther, deer, wolf of less than a century ago, forever gone, and in their stead a marmot—a ground-hog—as the prince of mammals hereabouts! Such the result of the coming of the white man, and the fencing in of nature for the raising of his cereals and the grazing of his domestic animals.

XX.

Aug. 31, '02.—It has come—the last day of another August—of another summer. Soon the hoar frost will sere the green of grass and tree. Soon the winds will blow from the north as strongly as this morn they roll up from the south. Soon, all too soon, this summer's wanderings and reveries will be a part of the eternity of the past.

In this latitude August is a month of languor, of sleepy content, not only with many men but

also among most animals. The wheat harvested, the corn laid by, the hay in the mow or stack, the farmer has only to look after his stock and "take life easy." Among birds 'tis a time of lassitude. The young of the season are mostly able to shift for themselves, insect life being usually abundant. In rest and a gradual gathering together, preparatory to the long southward migration which begins next month, are their days mostly spent.

The squirrels bask in the sunshine when it is not too warm, and at mid-day or during the night repose in their bulky nests of leaves. Ground-hogs creep slowly forth, seeking only food enough to keep life agoing, for fat is not needed until frosts begin to chill the blood.

The flowers of most herbaceous plants have long since blossomed and the bees drone lazily about the hives. All nature seems surcharged with languor and awaits the coming of the first hoar frost to stir its blood and cause it to begin that rush—that activity—so necessary to preparation for the long, cruel winter which lies beyond.

A great yellow and black butterfly, the giant swallow-tail,[16] goes lazily by on slow flapping wing about five feet above the earth. Its early life was doubtless spent in the leaves of that clump of prickly-ash, which flourishes in the lowland just around the bend. Its cousin, the zebra swallow-tail[17] soon appears, seeking, doubtless, some papaw bush on which to oviposit. Next comes the blue swallow-tail,[18] fluttering close to earth in search of the wild ginger, which grows along these shaded banks and furnishes food for many a larva of this brilliant species. Lastly appears the tiger swallow-tail,[19] as usual 20 to 40 feet in air, for its cradle home is in the trees, ash, tulip, poplar or hawthorne, on whose foliage it feeds and swings. Thus each species flies low or high according as its food plant is herb, shrub or tree. Four swallow-tails within ten minutes! But two other species occur within the State, and they may wing their way in sight before I part company with these old boulders.

[16] *Papilio cresphontes* Cram.
[17] *Papilio ajax* L.
[18] *Papilio philenor* L.
[9] *Papilio turnus* L.

"How I revere thy furrowed bark, O, black oak, lichen covered, seamed and gnarled as it is!"

The purple cymes of the ironweed are now in the full prime of their pristine splendor. With here and there the yellow rays of a sun-flower or an actinomeris[20] mingled, they present a pleasing picture on these August morns—more pleasing because toil and turmoil are absent, while peace and calm—free from all art of man —surround them.

Thistles are past their flowering prime and their seeds, buoyed up by silken pappus light as gossamer, go scudding past, borne on the wings of the south wind.

The handsome rose purple petals of a tick trefoil[21] gaze up at me from within a half foot of my side. The plant is dwarfed in size, yet has vigor sufficient to send up its solitary leafless flower stalk and open wide its half dozen showy pea-shaped flowers.

How I revere thy furrowed bark, O black oak, lichen covered, seamed and gnarled as it is! Within it is enfolded the strength of a century's growth. High and spreading thy branches, noble scions of a noble sire! Long may the

[20] *Verbesina alternifolia* (L.).
[21] *Meibomia nudiflora* (L.).

sun's rays fall upon them! Long may they withstand the blasts of Boreas and the on-rushing breath of the south wind!

XXI.

June 21, '03.—Once more, after an absence of nearly ten months, I sit at the boulders' base, and wait for the inspiration of my cerebral cells. The day is sultry, the sky o'ercast with haze and dull threat'ning clouds; yet, at intervals,

Over all
The rays of the morning sun
In glory fall.

Here I shall sit for two or three hours and wait for what I may see or hear of nature. Some of her objects will soon sound their notes of warning or of love. Others will doubtless flit by clad in motley pleasing garb.

Already the hum of mosquito has sounded in my ear and the caw of crow, from the top of the white oak above my head, has echoed loud and clear across the valley. Already the red-heads have on every side, welcomed me with their queer *quar-quar*. Already the wood nymph

butterfly has fluttered by—lifting its modest gray clad form but an inch or two above the tops of the wire-grass stems, and pausing for a second, here and there, on poised wing to scent or view the earth beneath. Already gnats have tried to enter my eyes and black ants have crawled beneath my collar, but these are only small troubles, mingled among the many greater joys of a naturalist's day in the woods.

The purplish petals of the daisy fleabane[22] or white-top show prettily from its nodding corymb which out-tops the ripening blue-grass stems on the wooded slope before me. In the clover field it is, to the mind of the hay-maker, a "weed" which arouses wrath and warfare; yet, here, isolated, it is to the botanist a daisy pure and simple—a flower well worthy of his admiration.

While sitting on the front porch of the old farm house I listened, for a time this morn, to two red-heads sounding their shingle drums on the barn across the way. One was near the eastern end of the ridge of roof, the other on the extreme western end some 60 feet away. Each

[22] *Erigeron annuus* (L.).

seemed trying to out-do the other, but the one on the east had the better sounding board and his music was the louder and the clearer. The west-end bird had a companion red-head, and sometimes two, within a foot of him and he beat the rattling drum-call twice or three times to the other's once, seemingly trying to make up in quantity what his sounds lacked in strength. For ten minutes thus they challenged and counter-challenged. Then the one on the east went galloping in vigorous flight o'er the pasture to a distant snag, while the west-ender and his companion each flew down and stole a grain of corn from an opening in the crib, then went westward to some oaks and maples. In five minutes they were back, and as soon as the musician had tried his shingle once or twice back came the east-end bird and went at his. Again for several minutes were the challenges rattled out and again the birds departed as before. Whether this performance is continued at regular intervals throughout the day I know not, but I judge that each bird lays claim to a certain

shingle on which the other dare not beat his rattling tattoo.

As usual, a quarter of an hour's wait by the boulder's side brings to view one or more fox squirrels. As I write I see one perched on his haunches on the horizontal limb of a maple, from which a great ring or encircling patch of bark has been removed. The squirrel a few moments ago crawled out, gnawed off a piece of the bark and is now sitting erect munching at it. I knew not before that they ate sugar maple bark in June-time.

Where the trees are close enough together these squirrels travel long distances in their tops. One starts from one oak to another along branches which are slightly overlapping yet too slender to permit his leaping from one to the other. Twice he essays the trip but turns back. A third time he cautiously creeps forth and gently presses down the branch on which he is resting until its leaves and twigs are interlaced with those of the other. Gingerly and slowly he creeps across the frail bridge, 60 feet or more

above the ground, and along the slender twigs of the other oak. As soon as he reaches a point where the branch is strong enough to bear his weight without too much swaying, he begins to move rapidly and soon goes in long, quick leaps along the stout limb and up the bole to another branch; out its full length to a maple, through the top of this onto an oak and again onto another maple, where he, too, begins to munch the bark, meanwhile gazing furtively in my direction. I have no doubt he both heard and saw me when I arrived and is now wondering—as well as his rodent brain can wonder—why I am remaining so long within the boundaries of his foraging ground.

When I move my head—raise it slightly to gaze at him—he squats motionless close to the limb, evidently believing that as long as he remains quiet I will take him to be a bunch of dead leaves, or a brown knot on the limb. A hundred squirrels, thus motionless, see a man passing through the forest where he sees one of them. Munch thy meal fearlessly, my brother mammal, for on this Sabbath morn I seek not

thy life, but only a short sketch of thy daily movements.

Sitting here, with thoughts afar off, I suddenly feel a twirk at one of the nerve cells in the back of my hand. I look down and note a minute gray midge—a veritable "no-see-em"—with his proboscis deeply sunk into my skin. I give him a gentle slap with the other hand and another life is blotted out and enters the portals of the great unknown. By that slight move of mine, energy and matter were separated. The one ceased on the instant to control the other. How wonderful their combination in so minute a mass as a midge! Yet not more wonderful than the way in which the message was sent to my brain of the twirk of the nerve cell on the back of my hand by the midge's beak.

XXII.

June 28, '03.—June in all her regal splendor is almost gone—and such a June! Cold and gray have been most of her days. Bleak and chilling the north winds have blown. The rays of the father of all—the sun—have shone scant-

ily upon this portion of the common mother during the June days of 1903. It takes those rays, fierce and strong, to beget in the mother that growth of grass and cereal which delights the husbandmen—that growth which, in time, fills their mows and cribs to overflowing with the produce of the mother—earth.

On the way hither I have plucked from the crest of the ridge above me three June wildwood flowers. They grow mostly on the uplands where the great oaks, maples and an occasional mulberry and beech, rear their boles and spread their branches. Each is common; each is typical of a leading family of flowering plants. One is the open head of the field thistle,[23] the first which I have seen this season, a representative of the great family Compositæ. Armed below with many a stiff spine and prickly involucral scale, the purple head itself is more soft and yielding than velvet. Of what a number of cylindrical rays is it composed! How compactly and prettily are they grouped! What a soft and delicate expanse they unfold to view! The

[23] *Carduus lanceolatus* L.

purple head is erect—a great eye, as it were, gazing up into the blue ethereal depths above—purple looking into blue—and mayhap gathering from the latter a deeper hue to add unto its loveliness.

The odor of the field thistle is not an especially pleasing one, but the beauty of the purple head with its subtending involucral scales of green, each tipped with a whitish spine, more than makes amends for its lack of fragrance. Rich in pollen, too, and visited each day by many a butterfly and bumble-bee. From out of the depths of the one in hand there crawls a slender staphylinid beetle, which is dedicated to science by consignment to the depths of a cyanide bottle. The first thistle blossom of the year, opening from the apex of the central stalk is, to an eye which appreciates solid beauty, one of the most attractive of our wild-wood flowers.

The stem of the second flower is also armed with spines and the hue a most charming one—the rich dark red of the upland wild rose.[24] It, too, is the first of the season. From the apex of

[24] *Rosa humilis* Marsh.

the branch which bears it spring also five unopened buds, each protected by the glandular green sepals. From the very center of a double score or more of clustered yellow stamens, the pistil rises, its cylindrical head now covered with granular grains of pollen left by some visiting bee.

The leaves, compound, each of them with five to seven thick, strongly veined, ovate leaflets, are well worthy in appearance the flowers they accompany. The odor pleasing, yet not delicate, is attractive to bee, fly and occasionally to beetle. Growing in isolated clumps, sparingly in this upland woodland pasture, this wild member of the Rosaceæ family is truly typical of June and well worthy the homage of all ramblers who seek the beautiful in nature.

The third flower which I have gathered is less common than the other two, and yet is often met with in open upland woods. It is the moth mullen,[25] a member of the family Scrophulariaceæ, and its flowers are more delicate than either those of the thistle or the rose. The one

[25] *Verbascum blattaria* L.

in hand is just in the prime of its blossoming period, and bears a dozen or more cream colored flowers, nodding from short peduncles about the middle of a long, wand-like stem. Those below have already "shed their fragrance on the desert air," and the fruiting capsules which have resulted each contain many tiny seeds—harbingers of future mullen stalks. The odor of the moth mullen is delicate and pleasing, sufficient to attract unto itself many a form of insect life. One which is always to be found upon it and upon its larger congener, the great mullen, is a small, thick-bodied, grayish snout beetle.[26] One or two are clinging to the flowers of the plant I have plucked.

Three June-time flowers—thistle, rose and mullen—growing abundantly in Central Indiana—radiant with beauty—adding to pasture and roadside much of interest yet, for the most part, blossoming unnoticed and unknown.

XXIII.

July 12, '03.—This morn the heavens wept. Their tears, in the form of rain, fell steadily

[26] *Gymnetron teter* Fab.

for hours and kept me from the trysting place—the spot where nature and I meet and commune, each with the other—the boulder nook on the sloping woodland hillside. This afternoon, therefore, I have come forth to a clump of sugar maples within sight of my usual resting place and am now leaning my back against the straight and sturdy bole of one of them.

The odor of earth, earthy, how it attracts me, rising as it does from the mold in these oak and maple woods. The rain of the morning has set it free. It takes me back to the first warm days of March and April—days of the great awakening—when the thawing soil with its cover of mold yields its penetrating odor. O earth mold, what entrancing odors canst thou emit when the frost king first leaves thy mellowed surface! It is that of earth divine. Pent up for years that aroma has been, but on such days it rises free and subtile to the nostrils of man. It is no wonder that the fragrance of many a flower is distilled by nature from the odors of such mold.

That lowly, ill-smelling Compositæ, the May-weed or dog-fennel,[27] flourishes in waste places

[27] *Anthemis cotula* L.

along the pathways and about the country barn-yards where men and hogs and cattle are wont to travel or congregate. Elsewhere it will not grow. I never see it or scent it without calling up from memory's cells the streets of a little country town where the May-weed held full sway a third of a century and more ago; a town of less than a hundred population, far removed from railways, whose citizens knew each other's every act and move, and were content to live and let live, sniffing the fœtid odor of the dog-weed from mid-June until mid-October. A "dog-fennel village" it was, in truth, where cows and hogs roamed freely at will, where the wishes of man were few and contentment ruled unbroken. And yet, to my boyish imagination, it was the center of the universe, the hub of the wheel of my existence. "Cow-weed" would, to my mind, be a more appropriate name for the plant than dog-weed or dog-fennel, for it grows best about those spots where kine are wont to congregate and ruminate.

Peace, quiet, what will a man not give for these two after he is forty? All else is little in

comparison. At twenty one wishes for clang and clatter—for rush and turmoil. At thirty he is often in the midst of them. By the time another decade is passed he has had enough, and longs for green pastures and running waters, far from the artificial sounds of man.

Ah, the sunshine and the shadows, how they intermingle in this world of ours—in this life of mine! The notes of the mourning dove and of the wood thrush come from the coverts behind me—one seemingly full of melancholy, the other clear, bell-like, full of joyous greeting.

'Tis even-tide. The shadows of maple and hickory, long slanting to the eastward, encompass me. The peaceful quiet of a Sabbath afternoon in mid-July enthralls my spirit. The sounds which at intervals are heard, are those of nature, not of art or commerce. No clanging bell, no shrieking whistle, no grit of wheel on gravel or grind of iron on iron jars my nerves. Only the peaceful warble of the bluebird and distant, subdued caw of crow greet my ears. Only the odor of the moistened mold or that of the new-mown clover, instilling my spirit

with an increasing love of the country, reaches my nostril.

Let peace and quiet reign over all. Let plenty abound throughout the land. Let simplicity and love of duty be the prevailing spirit of mankind. Let love grow within the heart and petty passions and jealousies be forever put aside.

At such a time on such a day the rays of the sun even, are slanting and mild, full of love; not beating down in full, relentless force as they do at noontide. They throw a haze, a glamour over all. They quench the fierce longing and ambition which forever keep up a tumult in the human soul. They curb the willful spirit of unrest which there abideth. They bring, at times, on a mid-summer eve like this, a certain content, a certain restfulness, which is the nearest approach to happiness I ever expect to possess.

XXIV.

July 26, '03.—Eight-thirty, A. M., according to the time of man. Who measures nature's time? The sun—king of all—as he progresses through space.

This morn his beams shine with unwonted vigor upon all things terrestrial which are exposed to them. Fiercely they fall. Deeply they penetrate, forcing out the moisture, drying up the sap, withering the living tissue. Out there, only a few yards away, their reflection, from the side of bare stump and barer stone, is seen upon the water from which they are pulling upward many a molecule of moisture. Here, where I recline, they are shut off by the thick foliage of the white oak which, like a great umbrella, shields me from their potent force. Out there is work, the rush, the turmoil of life. Here is peaceful quiet, rest, contentment. Blow, oh breeze, balmily against my brow. Waft from my soul every shadow of discontent. Let the cicada lull me, as it does this moment, with that song which tells of the full tide of the mid-summer—that song which breathes ever of happy days of leisure, when the air is cooled by balmy breeze and all nature seems at rest.

And yet, what is that resting spell but the forerunner, the foreboder of decay, of death? The leaves on trees and shrubs, the blades of

grass and sedge, the flowers of most herbs, have completed their life's work, have reached maturity, and now rest for a few days or weeks, then fade, wither, and pass into the great unknown.

How kindly these old oaks, both white and black, treat me! As I approach they wave their boughs in welcome greeting. When I sit by the side of the old gray boulders they shelter me from the vivid rays of sun and, at times, from the pitiless rain and hail. In their tops the fox squirrel gambols, and his antics furnish food for fancies of my brain. There, too, the wood pewee utters his plaintive note and the cicada his rattling love calls. Were these oaks absent the boulders would have little attraction, and another spot would, very likely, be my trysting place.

And with whom do I keep tryst? Not with a human of the gentler sex but with the God of Nature, and with that spirit of inspiration which dwells deep beneath the boulder's base, yet at times deigns to come forth and hold communion with my soul.

What a man writes for dollars has little value, if he write solely for the sake of the dollars. What he writes from inspiration, from love of his surroundings, from a heart full of content, that, alone, will last. We can never see or hear nature when shut up in a closet or within the four walls of any habitation. That of value, written of her, must be thought out within her domain; out where the free air, the blessed sunshine, are unimpeded; out where the object of which we write is close at hand to lend color and accuracy of description to the imagination of our brain. I write not of nature to please the multitude—though I am willing that it shall praise or condemn if it so desire. Rather do I write to please my own fancy and that of a score or so of my chosen friends, whose praise, if sparingly granted, is unto me sufficient reward.

In another old pasture which I visited a few days ago stand a number of isolated sugar-maples, remnants of the first sugar camp I ever knew—the one where the first "stir-off" at which I was a guest took place. The trees were

close together then, but now only a few individuals, gray, shaggy, monarchs of an almost forgotten forest, stand and spread their long, protecting branches o'er the blue-grass sward about them.

Limestone soil — blue-grass covered — maple shaded—what a perfect trinity! To me the charm is always lessened if one of the trio be lacking. They belong together, flourish best together—the soil yielding its elements to grass and tree—the grass its rich, nutritious juice to grazing sheep and kine—the tree its sugar and its shade. Of what pleasing, pastoral memories are they a part, when, in the distant, dust begrimed city, I sometimes close my eyes and ears and go back to youthful days.

Along the woodland stream in the valley before me many of these maples rise from the shelving banks; rise gracefully, with spreading branches, for 60 feet and more. They are the trees which the farmer most cherishes. His axe and that of the lumberman long since felled their taller, more noble companions, the great oaks, walnuts, hickories and poplars, which once

ruled over every one of these far spreading acres. To-day in many places only the sugar maples remain, too precious to be felled for the few paltry dollars which they would bring. Yielding in spring the sweetness of their sap, in summer the shelter of their shade, they are but sad reminders of the once noble forest which, less than two-score years ago, covered this fair domain of Central Indiana.

Even the maples are fast disappearing before the ravages of time. The lightning's blast, the summer's winds, fierce and strong, the toothed jaws of the borer, each season bring to earth some half dozen or more from almost every grove. Gray, sturdy, moss bedecked, with firm, hard wood suited to many needs of man—wood within whose cells the chemistry of nature begets sweets fit for a fairy's palate—may those, whose boughs swing lovingly o'er these placid pools before me, long live and prosper.

XXV.

Aug. 30, '03.—A gray, forbidding sky above, a cool north wind as an accompaniment, these

are the factors which cause the gloom of pessimism to enthrall my soul this morn.

Adown the valley, where the main tributary of the woodland stream winds its way, the iron weeds, springing tall and rank from the alluvial soil, outstrip all other herbaceous vegetation. Their purple cymes furnish on this dull August morn the only bit of color that enlivens the green and brown of the scene before me.

The most lasting and the most fragrant odor of these blue-grass pastures at this season is that of the sweet or fragrant life everlasting,[28] a member of the family Compositæ, bearing slender lanceolate leaves and creamy white flowers. It grows in profusion from poor soil in rather bare places on sunny slopes, and reaches a height of two feet or less. When plucked, its flowers dry without shrivelling and retain their fragrance for months. The odor is peculiar, differing from that of any other of our wild plants, and is to me most pleasing, both in itself and for the memories of other days which it calls forth. Holmes, in his Autocrat, has well

[28] *Gnaphalium obtusifolium* L.

said that "Memory, imagination, old sentiments and old associations are more readily reached through the sense of smell than by almost any other channel." The odor of the everlasting serves me as a kind of opiate or narcotic. I could almost lie still and live upon it. It always calls up, though indistinctly, autumn days of long ago.

Wandering farther adown the broad valley, I catch a glimpse, as I round a bend, of a great mass of yellow, gleaming above the omnipresent purple of the ironweed. Toward it I take my way and find a large clump of actinomeris raising its angled stems eight feet above the sward. The bright yellow ray flowers, an inch or more in length, are deflexed and very showy, while the thirty or more loosely bunched disk flowers are larger than those of most Compositæ, and in themselves would attract the attention of a botanist. The achene or fruit, is flat, winged and armed with two weak awns. The odor of the flowers is neither very strong nor pleasing, resembling somewhat that of the wild sunflower. This handsome, yellow-flowered Compositæ is

abundant in isolated clumps or small assemblies in the rich alluvial soils along the streams of the Middle-Western States. It furnishes the yellow, the ironweed the purple, and the everlasting the creamy white of a trinity of color which enlivens, in late August, the lower portions of this old woodland pasture.

Here and there a tall thistle[29] adds a dash of rose color, blooming, as it does, long after its more common cousin, the field thistle, has ripened its achenes. One clump of these thistles which I measured was nine feet in height, overtopping all the ironweeds and even the tallest of the actinomeris. Here and there on the stems were numerous brown plant lice, all arranged in rows, their beaks deeply inserted in the grooves, the head end always toward the ground or base of the plant. The stem must yield a sweetish sap agreeable to the aphids. The involucral glands of this and allied forms also exude a sticky substance which is very attractive to many an insect, and which often serves to entrap and hold them until they perish.[30] As yet,

[29] *Carduus altissimus* L.

[30] See "Cnicus discolor as an Insect Trap." *In* Canadian Entomologist, 1892, 310.

not one head in ten of these tall thistles has blossomed.

That plants as well as animals occasionally appear as "sports," is shown by the fact that all the disk flowers of the head of one clump of ironweeds are snow-white instead of purple in color. The pappus is also a very light brown, much lighter than that of the common purple flowered form.

On the dry wooded slopes the lopseed, the Indian tobacco and the horse-nettle yet blossom, while the brunella along the margins of the streamlet's shaded banks still yields its nectar to the ever busy bumblebee.

Absolutely bare places are very rare on the face of mother earth. If the surface contains nutriment enough for a weed or grass, or herb of any kind, there soon an herb will appear; there grow and perhaps reproduce its kind. There, too, it will, in time, decay, thus returning to the organic matter of the soil that which it has taken from it, and more. It thus gradually fits that soil for future generations of plants and animals and eventually for the use of man.

XXVI.

June 26, '04.—Once more, O boulders gray, I greet you! The days have been many, the months not a few, since last I held communion with the God of Nature at your side. This morn, bright, breezy, beautiful, I come again. From you I always receive a hearty, friendly greeting—a welcome which I see gleaming from your eyes of crystal, when, by the swaying of the oaken branches above, the sun's rays fall upon and are refracted from your surface.

You and I have both changed since last we met, but I more than you. More gray has grown into my head—into my soul. You have become a little greener, due to the greater spread of moss—in spots, perhaps, a little grayer, due to the deeper eroding of wind and frost—but you will be here thousands of years after I cease to come, for you are made of far more durable material than I.

Even the large black ants, which make their home beneath your friendly base, have a welcome for me and as soon as I am seated one or two crawl rapidly up my sleeve and over my

body. They are, perchance, avant-couriers, sent out to welcome me to my old resting place. For here is peace—that most precious of possessions—and quiet—that most restful of conditions—and reverie—that comes but seldom to me now as the days and the years, full of labor and of duty, surge and roll by. Oh, the beating of the waves of time, how incessantly they break and pass, and yet how surely they bear us on—on—on—toward the breakers of that unknown shore, where all must rest at last!

As I came hither this morn, slowly sauntering through woodland pasture and adown the valley where the streamlet glides, I noted, more than once, the long, wavering, graceful flight of the common red-head. From the top of some dead snag he descries another a hundred yards away. Perhaps there are borers there, or beetles circling about, or some other winged or creeping form which will serve as food. So his cerebral cells beget a desire to visit, and this desire begets in turn a command to muscular cells to carry him thither. Away he starts—straight as far as direction goes—but ever in an up and

down, undulating movement, the last impulse of which lands him, head upward, six feet higher on the trunk of snag or tree, than the level at which the impulse began. The motion is much more graceful than if the journey were made on the same level from start to finish. It is thus that all our woodpeckers make progression.

I am fearful that this boulder nook is being encroached upon by civilization. Hitherto I have esteemed it mainly because I thought it far out in the wild where man and his domestic animals seldom came. The nearest house is almost half a mile distant, yet I am suddenly startled by the *cuck-r-o-o,* or alarm note of a rooster, close at hand, and turning my head, see a gray grizzled plymouth rock, not twenty feet away. On rounding the hill he has come suddenly within sight of me and is apparently as much surprised as I. After uttering his exclamatory note, he stands and stares at me for a minute or more, then renews his industrious pecking at the grass seeds in a wide half circle about me. Strange to say, he is not the center of a following harem, but is alone, wandering

far from barnyard and kindred. Not "cock of the walk" is he, but literally a cock of the woods. Why he travels thus I cannot fathom. He does not have the air of a whipped cock, yet such, perchance, is his standing. If so, having been mastered by one of his fellows and deserted by his harem, he has wandered forth in search of riches and new loves, just as man, his master, for the same cause, has done before him for centuries untold. By so doing he is surely tempting fate, for this season foxes in numbers are said to dwell along these woodland slopes, and an old she fox would surely think that the fates were with her did a good fat rooster amble up to her very threshold on a Sunday noon in June-time.

Some ten minutes after passing from my sight, slowly and sedately feeding as he went, I am again startled by the cock's "shrill clarion" sounded from the crest of the slope above me. Three times in succession it is hurled forth, reverberating and echoing through the woods, a challenge of defiance to all of his kind. It seems louder, wilder, more far reaching than

usual, due doubtless to its being uttered here in the midst of nature, with naught to break its onward moving waves.

XXVII.

July 4, '04.—It is the "Nation's Glad Birthday." In ten thousand cities and towns throughout the broad expanse of the Republic bells are ringing, horns tooting, bands playing and cannon booming. Here, only the breeze, blowing merrily up from the southland, disturbs the quiet and peace of the July morn. In great waves it strikes and beats against me, wafting to my nostrils free, pure oxygen and faint odors picked up and carried on its wings.

Breeze, wind, hurricane, tornado—all names for the same thing—air, the world's outer envelope, in motion. Each designates, in a general manner, the rate of speed at which it travels. Not the dead calm and heat of a midsummer day, but a free, unimpeded movement, a vacuum here, a rush there—that tells the tale.

We walk out on a day of calm and scarcely know the air is present. We do not think of it

at such a time. But when the breeze, cool and refreshing, fans our brow; or the wind beats against our umbrella or body in strong eddying gusts; or the hurricane blows steadily for hours over a wide area, leveling forests, dismantling houses, wrecking vessels; or the tornado strikes with twisting rage a narrow strip, leaving death and destruction in its wake, then man realizes how eager nature is to fill a vacuum. When it is completely filled and the currents of air have assumed a state of equilibrium, then peaceful calm pervades, and the sun's rays once again beat with vigor upon the unfanned face of earth.

How many shades of green in the foliage of our common trees! That of the red oak and beech dark; of the sugar maple lighter; of the sycamore still more pallid, yet all green. Some slight difference in the chemical composition of the chlorophyll or coloring agent is doubtless responsible for this variation in hue. Looking down the valley, I see two greens almost as distinct as though they were red and yellow. One is the dark, almost black hue of the leaves of the papaw and black maple; the other the light

"An old stump, with a crown or leafy covert of this vine."

yellowish-green of those of the butternut and sycamore. Most of the older writers speak of the sycamore as the "plane-tree." To my mind sycamore is by far the more expressive, better fitted name.

The Virginia creeper is one of the most common and ornamental of our native woody climbers, often covering an old snag or dead tree with a mass of foliage and thus rendering an unsightly object most pleasing to the eye. It is by many confounded with the poison ivy, but is easily distinguished by its compound leaves possessing five, instead of three leaflets. On my way hither I passed an old stump, some twelve feet in height, with a crown or leafy covert of this vine. Its foliage, now a dense, dark green, will, in autumn, change to a brilliant crimson and scarlet, with here and there a purple tinge to add unto its beauty.

Since I was here last August the mulberry tree on the crest of the slope above has been felled for fence posts. Mulberry, locust and catalpa are accounted the most lasting woods for such purpose. Little difference did it make

to the owner whether the living mulberry possessed an inherent life and beauty more valuable for other uses than fence posts. That use and fitness was uppermost in the mind of the farmer and life gave way to death at his command. Thanks to the God of Nature and the protecting spirits of the woods my boon companions, the black oak, the white oak, the poplar, the water beech and the maple, still surround and shelter my bosom brethren, the boulders.

The cackle of the flicker is the only bird sound loud enough to be heard above the soughing of the breeze. The boom of nature's artillery comes up from the southwest where the dark clouds are banking.

A terminal moraine must have been dumped on this slope, or rather on this area, for the slope was not then in existence. In addition to the two boulders which are beside me, another lighter gray one is above and to my right, while a much larger one rests twenty-five feet farther down the incline. I also note that the red oak has grown above one of granite, the roots of the oak in one place looping around and pressing

close against the erratic. A tree—not a habitation—founded upon a rock!

The shadows of maple, oak and beech fall athwart the blue-grass and the ironweeds, and the light and dark spots add to the variety and attractiveness of the old pasture. In the one is coolness, in the other the yellow, blinding glare of an almost tropical sun. Shadow and sunshine, bitter and sweet, sorrow and happiness, ever intermingled, the one ever following the other where e'er we tread, what e'er we do!

XXVIII.

July 17, '04.—A fortnight more for me is nevermore. Two weeks of life, of love, of labor have gone by since last I sat by thee, my boulders, and communed with the spirits of the woods. To-day, again, the sun sends down his rays with strong refulgent force. To-day, again, the south wind soughs through the valley and cools my perspiring brow.

The processes of nature, ever working, never ceasing, are going on in this old woods pasture, as on the top of Mount Olympus, wherever that

may be. Wind and rain are now the agents. In three months more they will have taken into partnership the frost, and will have formed a triumvirate which, for six months succeeding, will rule, hereabouts, the surface of the earth; mellowing, carving, grinding, splitting, bearing onward and to and fro. Then frost, for a season, will dissolve partnership with the other two and let them carry on the business. For centuries untold has this triumvirate ruled in winter—ruled with an iron hand, and in a manner almost wholly uncontrolled by man. For myriads of centuries yet to be will the partnership be formed in autumn and dissolved in spring. Man can only look on and marvel at the work performed by these three ruling forces, when they work in unison, as they almost always do.

The long, low, rattling note of the harvest-fly or dog-day locust sounds at short intervals from the surrounding trees. Last night the clear-cut love call of the true katydid was heard for the first time this season. For almost three weeks the trill of a tree cricket has awakened the echoes in the back yard of my city home.

"The smooth gray bole of a half grown beech, here and there mottled with moss or lichen, is one of the most attractive sights of this woodland slope."

These sounds are but the beginning of that autumn chorus whose symphony will soon be heard throughout the land.

Another fortnight and the purple cymes of the ironweed will be waving in the breeze. Already the buds are swollen nearly to the bursting stage.

The sunbeams, falling almost perpendicularly through a rift in the overshadowing branches, have caused me to move to the base of the great white oak. Its trunk, strong, massive, gray, is full of vigor and the joy of living. The smooth gray bole of a half-grown beech, here and there mottled with the darker spots of moss or lichen, and with the sunlight glinting in patches o'er the surface, is one of the most attractive sights of this woodland slope.

I could almost hug the trunks of some of the smooth, medium sized beeches, oaks and maples of this old pasture, so much I think of them, their strength, their graceful forms, their ever welcome shade. It is the full vigor of middle life which seemingly I most admire in them. As they become older, their bark tends to become

rough, their frames gnarly, their general appearance gruff and less hospitable; perchance like that of most men and not a few women.

* * *

'Tis eventide in mid-July. Clouds hide the setting sun, cover everywhere the sky, cause a spirit of gloom to possess the soul of man. Only the distant crowing of a cockerel or, at long intervals, the prolonged, weird call of a pea-fowl break the silence of the summer evening. All birds are silent. Even the hum of insect is stilled. Quiet reigns supreme.

Where e'er I go I browse. Just now it is on pennyroyal. Sometimes it is on peppermint, or sassafras or spice bush buds. Again it is on hickorynut, butternut or walnut. Papaws, black haws, wild grapes, persimmons, blackberries, wild apples—all to me are most welcome, and their season never passes but on some outing I find them, take them, in part or all into my body, and perchance aid in giving their seeds a wider dissemination. A few days ago the fruit of the May apple or mandrake, yielded its tang to my palate—a peculiar, wild, semi-acid taste.

somewhat akin to that of some varieties of pine-apple. It should have been called July apple instead of May apple, for in this latitude the fruit never reaches that rich golden hue which betokens a perfect ripeness until the July sun has shed its beams athwart it. When I am really hungry and thirsty, I can eat a dozen of them without stopping, but usually one or two suffice to satisfy.

The season of the wild mulberry has, too, just been completed, and scores of them have, since June 20th, colored a deeper hue my œsophagus. When one happens upon a mulberry tree, where the big, black, juicy fruit hangs pendent from the lower side of every twig, he has hit upon one of the true treasures of a summer's outing. The red-headed woodpecker, connoisseur as he is of ripe cherries, June apples and other fruit, will forsake them all when the mulberry begins to ripen. From one to a dozen of the birds can then be seen at all times of the day, winging their way to and from the fruit tree to some snag or dead topped maple, where they have their nest or aery. Far richer in flavor is the

native wild mulberry of our limestone glades and uplands, or the low rich banks of our valley streams, than that of the cultivated varieties whose ancestry were imported from some foreign land. But there are mulberries and mulberries. As among all kinds of wild fruits and nuts, there are varieties or forms which far excel all others. A Burbank, with the proper choosing, propagating and cultivating, could doubtless, in a few years, induce some of the wild forms which I have eaten in the past to reach almost the size of a man's thumb. Whether he could retain or improve upon the wild, rich flavor, is another question.

As the darkness grows apace, two odors are wafted in on the rising breeze; one that of ripening maize, the other of pennyroyal. Each brings up some scene in the days of old, when time hung heavy on my hands and no shore seemed in sight to a drifting human soul. Millions of human beings drift, but how few ever reach any kind of a port, where life seems bearable. A man to drift successfully, must ever be an optimist, content with his lot, what-

ever it may be—not a pessimist in whose soul ambition, without a plan of work, is ever present.

XXIX.

Aug. 14, '04.—Ironweed time! Up and down the valley and its slopes their purple cymes now gleam in the summer sunshine. August time! The quiet and peace and glory of the aftermath surround and are with me. I come again to my boulders' side for inspiration. I lay me down beside them and wait, that in their presence thoughts sincere and worthy may be mine. Too often, in these later years, is my waiting vain.

While peace and calm surround me, the silence is ever broken. In the deep recesses of a cave, or sometimes in the "wee small hours" of a winter or spring night in the country, there is a silence that appalls the soul, that brings up uncanny thoughts of death and the grave. But here, in August time, from sun to sun, count we forward or backward, there is that trill of insects' wings and cymbals, which seemingly never begins and never ends. Mingled with it, almost

every instant during the day, is the cry of woodpecker, jay or crow, or the plaintive call of the wood peewee as it gazes on every side of its swinging perch in search of flying atom. At times these ceaseless iterations of bird and insect grate on my soul. Again, they are unheeded, for the wings of thought have flown far back to other scenes when the mercury of youth and hope stood high in the glass of time.

If, as we grow older, we could retain the youthful habit of being content with little things, of feeling a glow of pleasure when some streak of luck brings us an unexpected trifle, our later lives would be far more happily spent. But the average man is so constructed that the more he has, the more he wants. Contentment, therefore, never rests at his gate, but ever hovers just beyond. He is always seeking to place his hand upon her, but whenever he thinks himself within reaching distance, she suddenly and deftly eludes his grasp. Thus the demon of discontent is forever with us.

As I leave the boulder glade and start toward the crest of the woodland cliff, I am suddenly

startled by a black snake, five feet or more in length, taking life, as it were, at my very feet, and moving onward in rapid wriggling motion down the slope before me. For quite a distance it glides down the bed of a small arroyo or water worn gully, then taking to the grassy hillside it moves as rapidly among shrubs, weeds and stems of blue-grass. Suddenly stopping, it raises the forward third of its body so that the head is above the grass and weeds, and turning it to one side, gazes back to see if I am coming. It can evidently see thirty feet or more back as, when I reach to within that distance, it drops to the ground again, and glides rapidly beneath a shelving bank, which hides it from view. Twenty years ago I would have seized the nearest club or stone and hastened to mangle the handsome, glossy black, inoffensive reptile. Ten years later I would have run after it, put my foot down upon its neck, and catching it just back of the head, would have consigned it, squirming and alive, to a bottle of alcohol. To-day I but move slowly along its pathway, note the freedom and gracefulness of its motion, and

its power to see a supposed enemy a certain distance away, then wish it a long and useful life as it moves into the shadows of the sheltering bank. Such is the evolution of a naturalist in his demeanor toward the kingdom of snakedom.

I delight to lounge in the shelter of the half grown white oaks which stand somewhat isolated, each from its fellow, on the crest of this gravelly woodland cliff. There are a half dozen or more of them, from ten to eighteen inches in diameter, with handsome, smooth gray boles and low spreading branches, which extend out twenty or more feet in all directions, and furnish a plenteous shade above an inviting resting place. At this season the leaves, full grown, are of a pleasing grayish-green in hue, and very prettily and evenly lobed. They rustle and sway in the slightest breeze. Kindred of hue the leaf and bark and even the soil and grass which is here somewhat scant.

In places the dark green tree moss,[31] and a gray, densely tufted moss abound. The delicate stems of the partridge berry spread above and

[31] *Climacium americanum* Brid.

among them; all delighting to dwell in high shaded spots. About the margin of the cliff the marmot has the openings of his abiding places, and in the forks of one of the tallest of the oaks, the red-tailed hawk its nest. If one could rest here every pleasant day from April to November, he could discover and note many comings and goings, many wooings and matings of the rightful inhabitants of this charming, secluded retreat.

At eventide the sinking sun sends his rays in bountiful numbers all about me. Soon the diurnal forms of animal life will quiet down to a night's repose, and the nocturnal or night prowling ones will sally forth from their daytime hiding places. Raccoons, opossums, skunks and bats among mammals; owls and whippoorwills among birds; moths and many beetles among insects—each in search of a mate or of some form of food to stay the pangs of hunger. A mate to perpetuate its kind, food for growth and as a source of energy, those the two great necessities of every animal form since life began upon this sphere. As long as man sought them alone, his

advancement was slow, very slow. When, by degrees, he gained a notch, so that all his time was not necessary to provide food for himself, or for self, mate and offspring, he had leisure to think of other things; to devise new wants, to create new artificial desires. Is he now happier, more content, than in those old days when the search for food and a mate was his only aim in life?

XXX.

Aug. 28, '04.—The glamour of a perfect August day once more enthralls me. A temperature just to my liking—a dome of cloudless blue above me—a carpet of velvety green beneath my feet— what more could I ask?

I have watched for twenty minutes the fly-catching movements of a red-headed woodpecker in the valley below. From the center of each of the crowns of two mighty white oaks, which stand about seventy feet apart, extends a dead branch, bare of leaves and twigs. On the tip of one of these bare branches or aeries the bird rests and watches. Suddenly he gives a swoop, far out, up or down, as occasion requires, nabs

some kind of a flying insect and then flits back to his starting point or to the bare tip of the other tree. In the space between the tops of these oaks is the bird's hunting ground. No need for him to peck and hammer for grubs today. Mature insects, fat and juicy, are flitting by, and only a long swing, an open mouth, a click of the bill, and a dart to a perch are necessary to secure a dinner. He is too busy to even scold, and not a sound has he uttered during the time I have watched his movements.

Carlyle, in his Sartor Resartus, likens our sun to a porch lamp which lightens one little corner of a limitless universe. That corner through which the earth and other planets continually pass in their movements about the sun, is large enough for my comprehension without going beyond into the realms of other suns.

From Sartor Resartus to the grasshoppers loafing in the sunshine on the sides of the tree-trunks is a long descent, yet the human brain, in its activity, leaps boundless chasms. I note a pair of the grizzly locust,[32] on the bole of the

[32] *Melanoplus punctulatus* (Uhler).

poplar before me. They are evidently wooing, preparatory to mating before the frost shall have sapped their vigor. This is an uncommon insect in this portion of the State and reaches maturity only in late August, so that the hey-day of its existence is confined to the autumn months.

The summer is almost gone—whither I know not. On but one or two days has the mercury risen to or above 90° Far.; but one or two nights when blankets have not been a necessity yet September is almost here. The so-called summer months have, this year, been stricken from my calendar and have left little to denote their erstwhile presence. Man should measure his life by the deeds accomplished; by the thoughts, worthy and helpful, which his cerebral cells engender; yet few deeds, few thoughts, have been mine since the light of summer dawned. My life can not, therefore, be measured for the three months now ending. I have existed, not lived. I have dreamed dreams, not done deeds. I have not grown "like the corn in the night," as did Thoreau, while watching the

birds and the bursting sumac buds about the Walden cabin.

I have been, to some extent, content, and he who is content accomplishes little, grows little, betters the world little. Only the man inspired with discontent of his surroundings—inspired with a longing or an ambition for better things—works to an end, thinks noble thoughts, leads in the great struggle forever going on. For that reason poverty is oftentimes a blessing to a man with brains.

All of us enjoy leisure, especially in our younger days; but if that leisure is too extended and we rest content, we lose that energy, that ambition, that inspiration to lofty ideals which alone can make us leaders, not followers in the battle of life. As we grow in years and "get the habit" some of us become slaves to labor. Leisure is a possession we will have none of. We are not content with plenty, we desire a surfeit. Such a condition brings not the pleasure that the small earnings of old brought to us. Then the spirit of discontent becomes a demon and forever rules us, soul and body. Is it better to

be a man among men possessed of such a demon, or to remain one of the common herd, content with little?

XXXI.

Sept. 4, '04.—The pleasing temperature, the charming calm of a September morn surround me. The rainfalls of the past few weeks have caused that dark, glossy green in leaf of shrub and tree which indicates a surfeit of sap, a superabundance of chlorophyll laden protoplasm. The velvety stems of blue-grass—the aftermath which has sprung up since the drought was broken— also carpets the open spaces of the old pasture with a green which is unbroken and which charms and dazzles the eye with its brightness. Only the boulders at my back, retain the gray of the rock, the dark, blackish green of the partly encompassing moss, in unchanged hue.

As I recline and muse with half-closed eyes, my thoughts involuntarily revert to a secluded valley of mid-autumn—Indian summer vestured —where tall branching hickories have showered down a plenteous supply of white nuts. I know

not where this valley lies—it is perchance a medley, a composite of the best, the most pleasing of those I have known in days gone by—but I am there, with basket and bag, picking up eagerly the riches of youth; for in those old days a peck of hickorynuts gave more pleasure than dame fortune can now bestow with bounteous hand.

Along the edges of the valley are clumps of black haw bushes and over them and neighboring shrubs the vines of the summer grape have clambered. The fruit of the haw and the pendent clusters of grapes now tempt the palate, and I leave, for a time, the nut gathering and nibble and browse upon these wild, mid-autumn fruits. The chief attractions of the valley are, however, the haze of the air and the glamour of the autumn sunshine. How the latter glorifies everything which it touches; changing into temporary gold the brown and reddish leaves of the maple and reflecting in indescribable hues, the crimson foliage of the black gum and the scarlet oak.

Where the sun shines not, there my thoughts

do not dwell, for sunlight and happy memories with me go ever hand in hand. When clouds shut out the sun it is ever an "eat-heart day," especially if I am abroad in the woods.

On this boulder bedecked hillside many isolated shrubs and small trees reach the perfection of their growth. Here flourish the flowering dogwood, the hop-hornbeam, the water-beech, two or three species of Crætagus or red-haw, the thorn or honey-locust, the red cedar or juniper, some half-grown butternuts, a wild crab, etc. The dogwood now, instead of bearing a crop of fruit which would soon become a brilliant scarlet, has a second or autumnal supply of flowering buds, which appear as if they would open in a fortnight.

The water-beech, on close inspection, reveals hundreds of small holes in regular circles about its trunk. The rings begin some four feet above the ground and are an inch or two apart. They represent the work of some sap-loving, yellow-bellied woodpecker, which has sojourned here for a day or two in some one or more of its early spring migrations.

There are trees in this old woods-pasture that I love—trees that were born two centuries before I—trees that have sheltered the Indian and the buffalo, and have served as resting places for the wild turkey, the paroquet and the passenger pigeon. At times I step up to the trunk of one of these sturdy old white oaks and lay my hand reverently upon it. Gray and hoary with age, the sap yet flows freely through its outer third. Each spring its leaves put forth at their accustomed time. Each autumn acorns fall from its branches as they have fallen for a score of decades or more. This tree, standing so sturdily among its fellows, fighting so valiantly the battle of life, each year doing its duty in its simple accustomed manner, is more worthy of honor than many a human whom I meet. More innocent than they, with higher ideals than the majority of them—a living monument of a misty past that was almost forgotten when they were born—why should not I greet it more fervently than I do the average humdrum specimen of humanity whose acquaintance I almost daily make?

XXXII.

Dec. 25, '04.—Christmas day once more! A day which in the past ten years seems to recur as often as the Sabbaths of a score of years ago. The mantle of white which a week ago covered the bosom of earth is gone, and in its stead the dull, yellowish brown of half-frozen blue-grass, with here and there a spear of vivid green, which tells that life and immortality still lurk beneath the sod. Everything is soft and moist and the earth odor of decaying leaves rises to greet my nostrils. The air, however, is dense and damp, while gray, misty clouds hide every part of the o'erhanging dome. After a day of close confinement in the old farm house I start at 4 P. M. for a saunter through the woods-pasture, which I have not visited since September, to see what of life it still holds—what of sounds to greet my ear.

A faint scolding *kah-kah,* then a fainter contented *pt-pt-pt,* denotes the presence of some feathered friend, and glancing up I see a "devil-down-head" or white-bellied nuthatch, moving swiftly over a limb of an old maple, and

searching eagerly for some atom which will furnish him a supper. Finding nothing, he flies to the trunk of another maple, down which he goes head first in a series of short running leaps, uttering his cheery chuckle and peering and pecking on the way. When he reaches the bottom, upward he flits a dozen feet, then moves down again until he reaches a fragment of loose bark beneath which is, perhaps, some form of hibernating insect. At this he pecks until it is loosened and falls. Beneath it his search is rewarded with a mouthful, and away he goes. Ever at work, ever contented, this little ashy-blue and white denizen of the winter woods is an example of industry well worth noting.

I climb the slope to my beloved boulders and stroke the moss on their gray surface as gently as, in the past, I stroked the brown hair on the heads of my boys—now men. May the same spirit of kindly greeting always exist between these boulders and my soul. Why should I not greet them thus? Has not their presence inspired some of the best thoughts of my past, and what is more precious, more valuable to any

man than worthy thoughts snatched from oblivion by a ready pen? I can go to my library, take down my journals and see before me the product of my brain cells in some of those old days when hope reigned supreme within my soul and nature smiled assent. If these gray boulders, on which the moss is the greenest, most alive plant I have seen this afternoon, are not my friends, then have I none within the bounds of this old pasture. Why the presence of these old moss-covered erratics adds to the potency of my thoughts I know not, unless it be because the shadows of untold centuries lurk beside them and the vigor of the great ice age enters into and becomes a part of my being.

The woods are silent as the grave this gray December day. The spirit of the Christ-child moves not through their aisles. No leaves there are to rustle in the breeze, no breeze to sway even the twigs, no birds now chirping their love notes, no hum or drone of insects' wings. Only the gray clouds, damp earth, decaying leaves and the moss-covered boulders, to meet and greet my soul.

I go down to the brook which, in the course of centuries, has carved out the broad valley to my right—go down and hear the silence broken by the gurgling murmur of its moving waters. Here and there the brook meanders, its waters ever flowing toward some unknown goal which, thousands of miles beyond, awaits with eager bosom their oncoming. The life of man is often a meandering brook, with no settled purpose, no fixed goal in sight. On and on its gurgling waters—its days and nights—do move; now storm torn and wind beaten, again calm and peaceful as a summer's noon, yet ever flowing on to that unknown goal which lies beyond, he knows not where.

Along this peaceful flowing stream are few signs of life this Christmas day. Only in the deeper pools do minnows abide. Here and there a mink or a muskrat travels by night, or perhaps a raccoon, hard put to it for a winter bite. Yet the rippling water murmurs as sweetly, as cheerily, as it did in June-time, when life and love and content did dwell on every side along its crooked course.

XXXIII.

July 2, '05.—Another June has passed forever beyond my ken. Another July has been ushered in. I measure my years by their Aprils, Junes and Octobers. The Aprils I love for their southern breezes, fresh from the Gulf, bringing the first days of the great awakening; for their violets and dandelions; for their earth odors and songs of migrating warblers; for all else which goes to make a part of the glorious spring time.

The Junes are to me delightful for their balmy atmospheres and the clear, unbroken blue of their skies; for the dense green of grass and leaves when all the powers of life are in their prime; for the odors of ripening wheat and elder blossoms and the rich hues of wild roses. Then too in June-time we see first the firefly's glim and taste the first wild raspberries of the season.

Octobers are to me most charming for the glory of the autumn foliage, with its scarlets, browns and crimsons, all mingled in perfect harmony; for that hush which then comes o'er

the human soul when in the woods, that innate fear of the great unknown, engendered by the omnipresent falling leaf and dying herb, and by the last love calls of the locusts and the katydids. Octobers, too, call forth those thrills of life power and energy which the hoar frosts have begotten in my brain—those desires to be up and doing—to prove my right to be on earth and among men—a worker where workers are ever welcome. Then, too, October bears my natal day, and by its coming and going is my lifetime measured by others than myself.

I most welcome that blessed feeling of peace and restfulness which comes to me on summer Sabbath days when stretched out on the grassy slope beside these, my boulders; that feeling of having nothing on hand which ought to be done. At such a time, when half dozing, my mind often reverts, I know not why, to that little country village which was the Mecca of my boyhood days. Now its peaceful quiet comes up to me in dreams. There one day was as another in the procession of the years. The one store and postoffice; the broad, unshaded, unpaved streets;

the cows lying in the shade of an old apple tree; the hollyhocks and peonies and larkspurs of the yards and gardens; the old-fashionedness, restful quiet of it all! Just why the picture of its July and August days, when the dog-fennel was in its prime, should be so anchored in my mind I can not fathom. Yet we dream most of our boyhood or youthful days, and in the years of partial senility old men prate most of them.

To this woodland slope I often come on purpose to meet or hear reptile, bird or mammal in a state of nature, innocent and wild. The days of each individual of these different forms of life are spent in accomplishing three things: First, the finding of a sufficient food supply to keep the life fluid moving freely; second, the exercise of sufficient caution and outlook to prevent its capture and use for food by some higher form of life; third, in proper season, the meeting and choosing of one of its kind in order that its race may not perish from the earth. All forms of animate life, high or low as their degree may be, must ever keep these three factors

of existence in mind, else they go down in the great struggle forever going on about them.

The red-eyed vireo, uttering his joyful ditty so unceasingly in the branches of the white oak above my head, hunts bugs for breakfast as he hops and sings. At the same time his weather eye is kept open for hawk, butcher bird or coiled cow snake ready to strike. In the pensile nest, suspended from a branch of a nearby maple, his mate broods over a second sitting of eggs and listens to his never-ending call of love. Occasionally he flits to her with some juicy dainty of worm or fly, which while feeding or mating did not exercise sufficient vigilance and so has lost its place among the living things of earth.

Man and the domestic animals are the only forms of life which are in part exempt from this eternal vigilance of outlook, and this only in a so-called civilized land. Even here the hen must ever be on the look-out for the hawk, the mink or the fox, and a kitten lost its life on the floor of the farm kitchen a few nights ago at the mouth of a blood-sucking weasel. To eat

and not be eaten is, then, the one great idea or instinct, possessed by these wild fellow-creatures of mine, and second to it—nay first, at times—to meet, to woo, to mate.

XXXIV.

July 23, '05.—Nature has her own time and mood for doing things. It matters not though the protests of a million men be on record, rain it will when the conditions are ripe and nature is ready. Two weeks ago to-day a rain, slow-falling, never ceasing, prevented an outing. To-day, again, clouds dull and gray hide from sight the blue. Rain has fallen, threatens again to fall, yet for at least a brief interval I greet my boulders, whose spirits no rain ever dampens, whose bulk, no rain ever lessens, and ask, nay implore them to inspire my cerebral cells to action.

Along the pathways of the kine, between here and the old farm-house, a never ceasing struggle goes on between the blue-grass and several forms of lowly weeds. The grass succeeds in most places, but where too much trampled by the feet

of cows, its stems lose, to some extent, their power of crowding out and smothering, and the weeds, ill-smelling though handsome, have come to excel. Among them the dog-fennel or May weed ranks first in numbers. Each year they spring up and hold their own, starring the margins of the pathways with their yellow crowns and white rays. Scraping the mud from the swine which hurry past, trampled many times by the slow-moving kine, though mud-bedaubed and broken in stem, they succeed in ripening their seeds and perpetuating their race. An alien from the byways of Europe, it succeeds where many of our native weeds would fail, mainly by its properties of perseverance and stubbornness of spirit.

On the slope before me, leading down to the streamlet's brim, the partridge berry and the ground ivy trail, both past their blossoming tide, yet with foliage worth more than passing notice. Close to the earth they cling, concealing its otherwise bare surface and gathering unto themselves and commingling in their cells some of its earthy odor. The ivy begins to bloom early in

April, and from then till mid-June or later its small blue corollas, from amidst their bowers of green,

> Peep
> Upward through the ether blue,
> Seeing stars that ever keep
> Hidden close from human view.

The gray of the bole of the beech, the green of its leaf, how they blend and harmonize! No rough, unnatural, mismated hues, but merging gradually until they produce that mellow softness which delights and soothes the soul.

A butterfly holiday this. An ajax fresh from the chrysalis, resplendent in bars of black and white, with just a tinge of scarlet on the angles of his tails; the sulphur yellows sipping the moisture from the sands and making up in numbers for the monotony of their hue; the graptas, brown and sere, seeking some dead leaf on which to alight; the philenors, black and purple, flitting from one thistle head to another; the neonymphas, clad in quaker gray, moving ever close to the soil and the sod, all these and many others have come within the radius of my ken this morn.

I lay my head back on the moss-covered boulder, stretch my body out to a more recumbent position and in three minutes have left earth and all its belongings for the forgetfulness of slumber. Nature here, too, triumphs, for what more natural and restful than a midsummer nap on the bosom of mother earth with a boulder for a pillow. For twenty minutes I am lost to my ego. Then the drawling, rattling, continuous call of a cicada, breaks in upon my dreams. I throw back my blanket of air and assume once more a sitting posture.

On the boulder below me on the slope, patches of lichen alternate with patches of sunshine, when the latter oozes through the foliage of the o'er shadowing ironwood. Islands of yellow amidst splotches of gray, with here and there a little patch of dark green moss. The lichens are the pioneers, which break up the rock crystals into moss sustaining food. In half a century or more the surface of that boulder, now mostly bare, will sustain as much moss as do these, my intimates, on whose cushion my head has just been pillowed.

To the true naturalist nothing in nature is lowly, nothing is isolated. An inter-relationship, an inter-dependence is everywhere visible. However small, however stunted and ill shaped, nothing natural seems out of place. If it so seems it is not natural, not where it ought to be, and the question instantly arises, how came it to be thus? Some force, some activity, not of nature, brought it here.

Time is fleeting; it alone is a losing venture. My summer will soon be a memory, a memory of what? Of little accomplished; of great things thought of; of few deeds done. Soul songs unsung! We all compose them at times, some much more freely than others, but how few ever sing or play them so that other ears may hear! The elements are not atune. Too much discord; too much of a mingling of art with nature. It is only when the strings of art are snapped and those of nature at a high tension that a soul song can be played on this my harp of life.

XXXV.

Aug. 6, '05.—Once more unto the breach, O man; unto the breach thou lovest to assault—

the breach of nature! There to learn, as best thou canst, what of weal and what of woe has befallen thy chosen friends, the birds and bugs and flowers, during thy fortnight's absence.

From the crest of the ridge where I first lounge beneath a spreading maple, I note a flock of forty or more half-grown turkeys, led by a sedate and austere gobbler, come marching up the valley, not in a compact squad, but spread out in a broad, fan-shaped line. Each individual scans closely a foot or two of earth on either side of him as he onward strides; each being ready to pounce upon and swallow anything in the form of insect which makes a move before the advancing line. Grasshoppers, crickets and their kin, juicy, luscious and full of nutriment, are especially sought, and their ranks doubly decimated each day the onward moving army of turks patrol the pasture. Grass into grasshopper, grasshopper into turkey, turkey into fox or man, is seemingly the order or change which part of the matter in this old woods-pasture undergoes in the course of a year. Only the arboreal or tree inhabiting insects escape the

turkeys' gaze and crop, but on yonder swaying limb I note a wood peewee and on another a great crested flycatcher, each eager and ready to play the game in tree-top which the turkeys play so well over the sod beneath. War, then, not peace, exists here on this charming August morn—a never ending struggle in which the high and the low are the chief participants.

From this first point of vantage I saunter on toward the gray boulders, where my saints of inspiration dwell, yet sometimes are not at home when I knock upon their portals. While climbing the slope to their side, I espy, peeping above the gray mold amidst the leaves of the ivy and brunella, something white and glistening. Stooping I pick up a piece of semi-transparent quartz; pure white, vitreous and in outline roughly angular; yet worn by abrasion until its sharp edges and corners are rounded. How came it here? Go back through the centuries to the ice sheet, four hundred feet and more in thickness, which once covered this spot. Follow that sheet northward to some deep ravine whose edges are clothed with fir and pine, and

there, in the dense Canadian wilderness, will you find the mother ledge of quartz, gleaming pure and white, from which this piece was broken. Cold, hard and durable enough to withstand all elements of the present, it harks back to that age when ice was its master, bearing it onward in vise-like grip to be dropped on or near its present resting place. One fragment of matter, without life, thought or motion, has, after a lapse of thousands of centuries, met another endowed with these, and has been connected, at least in thought, with the ledge of which it was once a part.

The red-eyed vireo still babbles in the tree-top, but not as unceasingly as a month ago. His ambitions are somewhat quenched by these sultry August dog-days. His family, if it has met with no mishap, is now well on the road to maturity. His love days are over until another spring dawns on his world. Peace and quiet and a desire for rest at present possess his soul. At times he forgets and breaks into his old lullaby, but in a few moments catches himself at it and is silent again for hours.

The shadows fall aslant the slopes, while the oaks and maples which gave them birth rise perpendicularly. The sun moving to the westward gives the shadows a seeming motion.

I often wonder at the lack of ground feeding birds in open woods. We have at this season scores of tree and shrub inhabiting insectivorous species to one that seeks its living among the grasses. Our terrestrial birds are mostly permanent or winter residents, like the towhee, the song sparrow, the winter wren, etc. During the summer and early autumn months, where the turkeys and other domestic fowls do not range, ants, ground crickets, green grasshoppers and other insect forms abound, with few or no birds to prey upon them. It seems that here is a corner of nature, where the environments are suitable for a successful struggle, with no form of bird life to do it justice. Thrushes there are, to be sure, but their numbers are relatively few and their abiding places the thickets or woods with much underbrush, where they keep company with the towhee and the cardinal. The chipping and field sparrows feed chiefly on insects

at this season, but they frequent the vicinity of houses or meadows while, in the blue-grass pasture, with its many open sunny spots, where insect life in abundance is to be had for the seeking, bird life, except in the trees, is almost lacking.

The flowers of the pennyroyal, the Indian tobacco and the brunella, possess just enough of a mingling of blue and white, with perchance, in some, a tinge of pinkish, to render them delicate and attractive; for do not those colors or hues go best with delicate objects, like babies, frail women and modest lovable flowers. The forget-me-not, the parti-colored collinsia and the morning-glory, all favorites of mine, put forth these hues and are seemingly modest and bashful, as compared with other coarser and more vulgar plants, whose hues are red, purple or yellow.

XXXVI.

Oct. 15, '05.—It is mid-morn of a mid-autumn day. The sun, ever and anon, peeps forth for a few moments from beneath the enveloping clouds and sheds a mellow light and genial

warmth over the slope on which I rest. Great billows of that elixir of life, pure oxygen, are being wafted to and around me by the stiff breeze which rolls up the valley from the south-west.

The russet and green, the scarlet and yellow of the foliage of numerous maples, denote the season and forbode the coming of the winter. Two hoar frosts have come and gone. Bitter and pinching to the unprepared were they, yet begetting or reviving in the brains of humans such as I an inspiration for work, which the balmy airs of summer long since quenched.

But three forms of animal life have as yet been seen this morn; First the omnipresent crow, scolding at me with his harsh "ha-ha"; sitting quietly and gazing at me as long as I kept my hands in my trousers pockets, but off like a flash when I raised them towards him as if pointing a gun.

Second, a plump fox squirrel, which I surprised on turning a bend in the path. Springing erect on his haunches at first sight of me, he gazed for a single instant, then away as fast

as nerve and muscle cells could act and react, he went, his bushy tail waving in the stiff breeze. Up a few feet on a red oak, and then a maple, down from each, onward he sped, these tactics being to throw me off the track did I possess the power of following by scent. His course was in a bee line toward a sturdy white oak where a hollow limb furnishes protection against the breezes and the leaden pellets of man.

Third, the grasshoppers or locusts, red-legged, sulphur-winged and clouded, leaping merrily from my pathway; all enjoying the warmth of sunshine, then brightly diffused, but now shut off by gray murky clouds which threaten a down-pour.

Since I last saw these boulders I have floated in a row boat nearly the full length of the prettiest river in Indiana—the Tippecanoe. That journey but increased my love for the woodland streams, such as the one before me. They alone make the rivers possible. They are the fountain heads, the silent sources, the branches which pay increasing tribute to the greater streams. From between the layers of stone or

clay along the bluffs or banks of such woodland creeks the springs, countless in number, well and trickle. From their mouths drip the drops of pure, limpid water which, gathering together, flow slowly but surely onward into the maw of the well known river. Blot out the springs, dry up the smaller streams, and the river which drains thousands of square miles will soon cease to be. As long as man allows the trees and shrubs to clothe the hillsides and uplands with their green and brown of spring and autumn, so long will these woodland streams add to the waters of the greater river their purity and their strength.

That red or crimson which bedecks the white oaks to-day, where does one ever see its counterpart among the hues designed by man?

The brunella still blossoms on the brink of the branch. The everlasting still sifts forth its fragrance to the passing breeze. Buzzards soar on outspread wing, seeking not the pleasing odor of the living everlasting, but that of death.

As the wind increases and the raindrops begin

to patter, I reluctantly start homeward, but stop by the side of the clump of prickly ash in the valley beyond. Here, partially sheltered from the fierce gusts, I watch for several minutes a bevy of yellow-rumped warblers. They flit from twig to twig of the shrubs, and at short intervals dart into the air and catch a fuzzy gnat or other form of flying insect. Occasionally one of them utters a series of short, dull twitters. A blue jay scolds at me from the top of a near-by butternut. A chickadee calls his cheery notes not far away. A flicker flits from maple to oak, and a red-head goes by cleaving the air in undulating line. If one wishes to see bird life on such a breezy autumn day he must forsake the uplands and seek the shelter of some cove, where shrubs and trees abound. It is there that insects still live an active life, there that the cool, penetrating blasts of air are shunted over and beyond the feathered forms which yet abide with us.

It is never "to-morrow." It is never "yesterday." It is ever to-day. We dream of to-mor-

row. We regret yesterday. We should *do* today. Our dreams might then come true. Our regrets would then be few.

XXXVII.

July 8, '06.—Possess thyself in patience, O my soul! Let seconds be as days unto thy reckoning. Do well the little things which come thy way. Think well the thoughts thou wouldst impress upon the tablet of eternity.

The universe is great; too great for comprehension by any human brain. 'Tis made of atoms too small for human mind to grasp; and yet the one combined doth form the other. Each mile we tread is made of inches. Each masterpiece of man hath required years, long years of earnest toil. The boulder at my side is not, as it appears, one solid mass of matter, but a union of grain on grain, held firmly together by the great force of cohesion. The oak tree which towers above me for one hundred feet or more, is not one living body but a union of millions of cells, which for two centuries and longer have been slowly forming. Minute

grains of inorganic matter form the rock; microscopic cells of living tissue the giant oak; seconds of time that eternity of which we inherit an infinitesimal part.

The tissues which form our bodies are far softer, more fragile, shorter lived than those of either rock or tree, yet those tissues are composed of atoms of the same elements as they. From the rock, aided by lichens and moss, comes the soil to carpet the earth and furnish matter in digestible form for the growth of plant. The latter provides all protoplasm, stores all energy which we, the highest, as well as the amœba, the lowest, of animal life do use. It is a long, long stretch, with many a diversion, back, back through the eternity of time from the gray matter in my cerebral cells through the tissues of the plant to the gray matter in this primordial rock, or that of another of its kind, yet the way has been traveled and from the one has, in the past, the other been derived. Then, possess thyself in patience, O my soul!

The warble of the red-eyed vireo, ceaseless,

iterative, comes from the maple-top. Joyous his July days as he moves hither and thither, sending forth his overflow of energy in continuous ditty, as he hunts for food. How different his manner from that of the pair of diminutive blue-gray gnatcatchers which flit silently, like fairy ghosts, from twig to twig of the near-by dogwood, scanning closely every leaf for the minute insect forms which furnish sustenance.

Sauntering slowly and quietly along the valley of the stream as I came hither this morn, I encountered a ground-hog, about three-quarters grown, which had come down from his burrow at the top of a steep, shelving bank to get a drink. He had evidently quenched his thirst and was feeding daintily upon the tender tips of grasses and the heads of white clover which grew close along the edges of the water. Standing motionless within five feet of him, I watched him closely for several minutes. The taller grass blades he pulled down with his fore paws and munched their tips with evident satisfaction, while he seemed to choose only the riper clover heads, in which the seeds were

partly matured. Suddenly he inhaled a whiff of some strange odor, and rising on his haunches, sat erect and stared at me. Into each other's eyes we gazed for a minute or so, curiosity perhaps gleaming from mine, fear from his. His fear allayed, my curiosity in part satisfied, he resumed his accustomed attitude and slowly and sedately climbed the slope to the opening of his burrow, pausing many times on the way to nibble and browse. Two fellow mammals thus met for the first time, both denizens of a common earth, both evolved from a common source, each with the same organs; his senses of smell and hearing far more acute than mine, my power of reason many fold more potent than his; an insuperable gulf between us, yet back, back through the ages, our pathways converging until they meet and mingle.

Moving a few paces to one side of the boulders to escape the sun's rays which were sifting through the branches of the oak, something snapped like a toy pistol or fire-cracker beneath my feet. It was too late for the noise

and fireworks of the Glorious Fourth, so glancing down, I found that I had trodden upon a globular "oak-apple" or gall an inch or more in diameter. It had a tough, air-tight skin or outer wall, and when stepped upon had popped as would a toy balloon or an inflated paper bag. In the center was a minute pea-like ball, from which radiated in every direction scores of slender filaments which were attached to the inner wall of the cover, thus serving like guy ropes to hold the "pea" or larval chamber in the exact center of the sphere. On cutting open the central portion there was disclosed the living pupa of the hymenopterous insect which had formed the gall. It was nearly ready to emerge, the wings and joints of its antennæ being plainly visible beneath a hand lens. My footstep had accidentally burst its protective sphere a few days too soon and so prevented its coming forth as a minute, blackish, four-winged fly.* These galls mature in mid-summer, and are usually quite common on the twigs or leaves of the black and red oaks.

*_Amphibolips inanis_ O S.

Curious and interesting are many of the devices which mother nature uses to cradle and shelter her numerous progeny during their immature stages. For each device, however, there is a reason. None happens by chance, but all are the product of that evolution which has continued in ever increasing progression since the day that life first dawned upon the face of earth.

Brookside Gleanings.

"I am accustomed to regard the smallest brook with as much interest, for the time being, as if it were the Orinoco or Mississippi, and when a tributary rill empties into it, it is like the confluence of famous rivers I have read of. * * * Its constant murmuring would quiet the passions of mankind forever." —*Thoreau.*

I.

July 20, '99.—The zigzag course of the brook which flows through this old woodland pasture is always attractive. In great S-shaped loops, ever following the line of least resistance to its moving waters, the stream meanders on. In this respect it is like many men who follow the bent of their own spirits and turn aside or around for every obstacle which they meet in their onward course through life.

It is but a small stream, flowing slowly through a region where the incline is gentle, yet its pools and ripples are the homes of many forms which would not be here were it away. Its presence therefore adds much to the fauna

and flora of the old pasture through which it winds. In places springs break out between the gravel and hard clay strata, and send down their limpid waters to increase its store. On hot, dry July and August days crayfish and frogs creep and crawl from its margin up to these springs and rejoice in the coolness of their dripping crystal drops. All nature is glad that such a stream is here, and if nature rejoices over its presence why should not I, at times, wander along its banks and record the doings of some of its lowly denizens.

Just now I am seated beneath a spreading maple, whose foliage provides a pleasing shade over and about one of the placid pools of the stream. As I approached this pool there was a peculiar peeping cry and a sounding splash as a green or spring frog[1] leaped from the high bank three feet or more into the water. Many times in the days that have gone by, he has doubtless essayed the same leap, knowing by instinct and practice that the yielding water will break the force of his plunge.

[1] *Rana clamata* Daudin.

As he strikes the surface and dives to the shelter of a friendly boulder, the minnows in the pool dart wildly to and fro, wondering perchance, what has disturbed the serenity of their abiding place. Horny heads and stone rollers[2] they mostly are, dwelling here in peace and unity, free from the tempting hook which beguiles their kin in the pools of similar streams, nearer the larger towns and cities. Preyed upon only by an occasional kingfisher or passing mink, living and loving and begetting their kind, changing the matter prepared by lowly plant form into their muscles, thus gathering and storing for higher animals which in time may happen by, these minnows pass a dreamy sort of existence in these woodland pools. How long they live, if left to live, I know not. A score of years, perhaps, if the fates are kind.

Along the shelving banks and low bluffs of this stream are, in many places, cedars—junipers—ranging in height from one to twenty feet. The seeds from which they sprang were dropped here by some bird three, eight, a dozen years

[2] *Hybopsis kentuckiensis* (Raf.) and *Campostoma anomalum* (Raf.).

ago, or were blown here o'er the surface of the snow by some December blast. Taking root in the limy soil and sending down their fibrous rootlets to the lasting supply of water, they flourish, giving shelter to many a bird by night or on wintry days, and adding meanwhile a tinge of green to the old pasture, especially notable when all else is bare and brown and sere.

Around a number of the springs which drip into the stream from northward fronting banks, flourishes the clearweed[3] with its pellucid stems; cool moisture and carbonate of lime being two requirements of its growth. There, too, the jewel weeds or wild touch-me-nots,[4] yellow and orange, grow in profusion, opening their petals to the sunshine of June and ripening their pods before the frosts of September.

In a deeper pool, a little farther down the stream, a school of minnows, much smaller than those above mentioned, are noted in the shallow water near the shore. A hundred or more, progeny, perhaps, of one mother, they move slowly, close together, and either float midway between

[3] *Pilea pumila* Gray.
[4] *Impatiens pallida* and *I. fulva* Nutt.

the surface and the bottom, or else nose in the silt and mud. At short intervals one or another of them turns sideways and allows the sunlight to glint from the silvery scales. It is upon such schools as this that, in the larger streams and lakes, the black bass and the goggle-eye delight to dart, and with open, funnel-like jaws, scoop up and swallow a score or more at a single gulp. Ever on the alert, these little fishes are frightened at the smallest shadow that falls athwart their field of vision, or at the least ripple which might betoken the onrushing of one of their larger cannibalistic cousins. When either shadow or ripple disturbs their senses they dart a few feet away and again huddle close and nose the silt for sustenance.

A large brown water spider rests on a half submerged sycamore leaf which is moored to the shore by the base of the floating twig to which it is attached. He rests and waits, motionless for the fifteen minutes which have elapsed since first he came under my notice. What waits he there? Some gyrinid, or floating mosquito larva? Some gnat or fly which may come

winging along the highway of the stream and pass within striking distance? He is a pirate watching for his prey. So are all animal forms which lurk for the passing of a weaker kinsman.

In the towns and great cities of to-day many humans also assume the role of pirates, and live upon those weaker brethren, whom they may lure into their lairs. Creating nothing themselves, but preying ever upon those who do create—upon the farmers who make the soil to yield its food for all mankind—upon the workingmen who cause the fiber, the wood or iron, to assume many and useful forms, these human pirates prey. They give little or nothing in return for that which they take. The less they have to give the better are they satisfied. Such form of piracy is far from my liking. Rather would I be here with the brunella showering its charms upon me as it clings to the verge of the o'erhanging bank of this woodland stream; here where piracy exists only among the lowly of nature's creatures; where politics, twin brother to piracy, is unknown; where peace reigns supreme and quietness is its boon companion.

Upon the flowers of the brunella a small brown hesperid butterfly settles and unfolding its proboscis, prods amidst the petals for honey. The butterfly is not a pirate for it takes only that which the plant is willing and anxious to give. In exchange it carries particles of pollen from the stamens of one blossom to the pistils of another.

I flip a short piece of twig onto the surface of the pool within a half foot of the waiting spider. Instantly he makes a lunge over the surface of the water toward it, tests it with his palpi, then darts back to his perch on the floating leaf and becomes as motionless as before. Had the twig been a grasshopper or some other form of insect life which had leaped or fallen into the pool, his vigil would have been rewarded; his dinner would have come to him. So wait the city pirates for the coming of their prey from the farms and workshops of the land. They have only to wait, sharpening, meanwhile, their wits which serve them as fangs; for in due time their prey will come.

II.

July 27, '99.—'Tis Sunday morn again. How quickly the tide of time ebbs and flows during these serene summer months. To-day I shall again wander 'neath an azure sky, by quiet pools and shadowy ripples and learn what the woodland stream has to tell of life within its waters or along its shores.

As usual almost every pool has its spring frog sitting as sentinel upon its banks. As I approach in he leaps with resounding plunge, thus causing all the denizens of the pool to be wary. Is it a squeak of affright, of defiance, or of impudence which this green frog utters as he springs? He burrows into the sand and silt at the bottom of the pool, but shortly his head appears above the surface and for a long time he "treads water," while he keeps a bright eye fixed upon me. A few days ago I noted a bull-frog thus treading water. His body was almost erect—and how like the body of a man is that of a frog when erect—and his front feet moving at the wrists kept up a slow but continuous paddling motion. Occasionally the

hind feet would give a quick upward and downward stroke. In this way he kept his perpendicular position with head above water for several minutes.

Great boulders of granite, gneiss or other form of igneous rock, moss covered and pitted by the frosts of centuries, protrude from the side of some steep bank or rest in the midst of the stream itself, the space beneath their angled sides furnishing a secure and shady retreat in which the larger inhabitants of the pool find refuge when danger threatens. If, perchance, the boulder occupies the middle of the stream, below it will be found a little delta or bar of sand formed during freshets by the friction, union and consequent slowing up of the two currents of water which were split above the boulder as the flood dashed along. These lifeless boulders are older by many centuries than the stream itself, and often form perches upon which the sentinel frog rests, his hues blending with those of the mossy cover. Here, too, the handsome lady turtle, or its larger cousin, the snapping turtle, delight to lie and sun them-

"An old oaken stump from between the angles of whose base spring dense clumps of a deep orange fungus."

selves, keeping ever a sharp look-out for whatever savors of approaching danger.

Often-times in the bends of the stream are bunches of drift composed of logs, chips, pieces of bark, limbs, rails, boards, dead weeds and leaves, flotsam and jetsam of the freshet days, all heterogeneously mingled and forming a retreat into which the shy mink likes to dart, either from his enemies or after some wood mouse or winter wren which he thinks may also have found shelter within.

Here, too, the harmless but much dreaded water moccasin[5] has its favorite abiding place, and often rests stretched out alongside some dead branch whose shape it cunningly simulates while awaiting the approach of unsuspecting frog or bird.

An old oaken stump stands near the streamlet's rim and from between the angles of its base spring dense clumps of a deep orange fungus. These fungi overlap and spread around one another, as if each sought a shelter or hiding place beneath its companions. The pileus

[5] *Tropidonotus sipedon* (L.).

or cap of each is three to eight inches across. Oftentimes when in the prime of life the center of the upper side is a smoky brown; all else being a rich orange yellow. Between the numerous spore-bearing lips or lamellæ on the under side, a half dozen or more species of beetles have their home, and oftentimes the stem is honey-combed with their grubs or young. These feed upon the luscious juices of the fungus, and as it dies and dries they enter the pupal stage, from which time brings them forth as imagoes, ready to seek a new home in another clump of the same fungus, which a gentle rain or two will cause to spring up from the angles of some neighboring stump. Children of a night, these orange fungi, called into life in July or August time, by warmth and moisture; changing oaken fiber, long since dead and dry, into food for beetles' use, and gracing, meanwhile, the shores of this woodland stream with their attractive form and hue.

As I approach another pool, the minnows therein see me before I catch a glimpse of them. Even the semblance of my shadow, reflected

across the mirrowy surface of the water, or refracted into its depths, begets in their simple brains that fear, which is ever ready to express itself in rapid movement to some place of shelter. That wariness and the alertness accompanying it is an inheritance of all vertebrate forms, however lowly, and also of many invertebrates. All animals in a wild state feed with ear, eye and nostril open, to hear, see or smell an enemy. One can almost any day see this wariness manifested, in a crow, a squirrel, a marmot or a minnow. Watch a squirrel or a marmot feeding on the ground, and note how almost every minute, it rises on its haunches, looks all about it and sniffs the air. Danger is ever to be expected. Food is to be had only at the risk of life. Success in the great struggle depends upon hearing, seeing or scenting an enemy before it comes in striking distance, and then running from it, hiding from it or meeting and overcoming it in the open, where stealth and cunning count for naught. Wariness coupled with alertness form, therefore, one of the principal factors which enable one out of a

thousand of a certain form of animal life to reach maturity and perpetuate its kind upon the face of earth.

The minnow in this quiet pool, seeing my shadow cast athwart the water, is not afraid of me individually. It probably knows nothing of man, his fish-hook or his seine. It is not able to distinguish my shadow from that of a bird or some piscivorous reptile or mammal. But that shadow may belong to a kingfisher, a fish-hawk, a mink, an otter, or some other fish-loving vertebrate. So it instantly seeks safety in flight, and hides beneath the o'erhanging bank, or in the shadow of some friendly boulder or half submerged log or stump. If it lives to a ripe old age and becomes father or mother to many minnows, it bequeaths to each of them this wariness and alertness, in stronger form, perhaps, than it possesses. Without it they would be helpless, and would soon perish from these placid pools, where danger is seemingly absent, yet ever lurks for the unsuspecting.

III.

Aug. 16, '00.—A deep pool at the base of an old gnarled oak; minnows swimming gayly through its depths; mosquitoes hawking above it and testing my blood as soon as I seat myself in the shade; wherrymen skating merrily o'er the surface of the pool; leaves of many kinds, brown and withered, last season's crop, decaying beneath its depths—such my first introduction to the woodland stream this morn. I like at times to be where no human soul knows where I am—alone and unnoticed in the universe of God.

How bright and clean and pure the pebbles in the bottom of many of the pools. They are drift pebbles of quartz, chert, gneiss, syenite and granite, torn from their mother ledge in the far north and borne by icy steed to some resting place near here. In time the stream wore its way over and through the descending slope and they, by agency of frost or water, of man or burrowing mammal, found their way into its bed. There they have been rolled along, buried in its debris, uncovered and re-covered for perhaps ten thousand years. To-day they look up

and, methinks, sparkle with delight that I deign to notice them. Each has a hue, a fracture, a form or a crystallization by which I recognize its makeup and its name. Some of them are close kin to, perhaps came from the very ledge as did the boulders I love so well, which rest on yonder sloping hillside.

In the shrubs and the long grasses of the lowland marshy spots along the stream, the "ceaseless trill" has begun and will continue until October's chilling blasts end the life of the musicians. Cicada, tree cricket, ground cricket, katydid, grasshopper, mole cricket, each adds its mite to the maze of sound. Love or the desire to love doth all pervade. The songtime of bird has ended. It has resulted in a new generation of nestlings, which has gone forth to make the springtime music of another year. The songtime of insect has but just begun. They sound their cymbals, and if love be near it answers with its presence. The music of the one to whom love hath answered ceases and passion, that force which plays the harp of love, doth reign supreme.

On these sunny August days the sulphur-yellow butterflies seek the moist sands along the margins of the stream, sometimes a score or more in company. They hover over one another, then settle down and sip the moisture; then arise and drift away on the passing breeze.

To the naturalist any bright bit of color is always attractive. In summer it may be anything but green, in late autumn anything but brown, in the snow-present days of winter anything but white. To-day a bit of scarlet on the hillside just above the brooklet's rim shines out from amidst the green of the blue-grass. An investigation discloses the cylindrical fruiting spike of the Indian turnip. In shape it resembles a short nubbin of corn with bright scarlet grains. There are sixteen irregular rows of the fruit. Some of the berries, for that is what they really are, are quite small and imperfectly developed, but the great majority are plump and in shape resemble roughly a grain of corn; the outer end being more rounded. Each berry contains a single globular, hard, whitish seed, almost half the size of a pea. This is surrounded

by an orange colored pulp, with a pungent peppery taste. The spike itself is about two and a half inches in length and bears 160 of the berries. What insect, bird or mammal feeds upon the fruit? Some form doubtless, which likes quite a bit of pepper in its provender.

Wherever a sandy or pebbly beach of any extent occurs along our inland streams, the "peet-weet" or spotted sandpiper,[6] smallest of our native waders, may be seen on these mid-summer days. Bobbing and bowing its head, tipping and teetering its tail, all jerks and quavers, it wades the shallow water; its bright eyes ever on the alert for larva of water insect or the crawling form of some margin dwelling species.

At this season, also, the bordered skipper, smallest of our butterflies,[7] is a common object among the dense grasses and sedges along the marshy edges of the stream. Flitting hither and thither, it alights for an instant on the flower of balm or mint, then is up and off to a leaf of sedge where, perchance, it drops an egg, to take its chances in the battle of life. A deli-

[6] *Actitis macularia* (L.).
[7] *Ancyloxypha numitor* Fab.

cate flying object this, less than an inch in expanse, with center of each hind wing a dark orange yellow, the margins and fore wings a blackish brown. Here and there and yon it flits, an active midget, full of the energy and joyfulness of its mid-summer existence.

Sunfish are scarce in the upper portions of this woodland stream. But few of the pools are wide and deep enough to suit their liking. In their place minnows and chubs[8] abound. I pitch a half grown grasshopper into the pool before which I sit. The second it strikes the water there is a dart and a click of jaws. Four times in rapid succession the click continues. The fourth time the struggling insect is borne far down and forever disappears. Each time of failure the fish, a large horned dace, turned as it made the snap at the struggling insect and darted downward, not caring to risk appearance at the surface for more than a fraction of a second, so wary was it of danger from kingfisher or other enemy. Each time it returned and darted upward at its prey. Its aim was

[8] *Notropis* and *Semotilus*.

bad, but by perseverance it was successful and secured a dinner.

Swift in pursuit of whatever floating object attracts their gaze; darting like trout from the shadow of bank or rock where they wait, then back into the depths, these creek chubs are the monarchs of the pool in which they dwell. They never lurk like other minnows in schools near the shallows or the surface. But one or two inhabit each pool. Reaching a length of six or eight inches, their meat, when fried brown and crisp, is sweet and nutritious, and their bones few. The average farm boy of less than a dozen years delights in catching them. To him they are gamy. As he grows in years and experience only the goggle-eye, the bass and the pike are deemed worthy of attention. The chubs, like a well-worn toy, lose all attractions. The world is bigger in his eyes, and bigger fish and bigger game alone do satisfy.

IV.

Dec. 28, '00.—The blue of early morn has given place to haze and cloud. The blast of

Boreas which then sang about my ears has disappeared. The mercury stands at 35° F., having risen from 2° since yester-morn. A snow an inch in thickness has, meanwhile, fallen.

Along the woodland stream there is an open place in the ice at every ripple and the gurgle of flowing water is music to my soul. Between the ripples a fox has used the ice as a highway while seeking mice and birds among the fallen grasses along the borders of the stream. In two or three places are evidences of a struggle; such as a spot of blood on the surface of the snow, or a bit of gray fur. They are signs of nature's tragedies denoting where a mouse's soul went out into the great unknown; where a mouse's body furnished fuel to keep the blood a-tingling in a fox's veins.

The common gray rabbit[9] has the sense of hearing acutely developed. His external ears would not be as long as they are except for good reason. One heard my approaching footsteps twenty rods away and scurried forth from his bed of leaves beneath a sheltering juniper. If

[9] *Lepus sylvaticus* Bachman.

there had been no snow, or if it had been upon the ground for several days, he would probably have laid low and relied upon my passing without seeing him; but he evidently knew that his tracks of last night would betray him and so was up and away before I had come within danger distance. He evidently distinguished the sound of my footsteps from that of the steps of the cattle and hogs which frequent the pasture.

A white bellied nuthatch works its way by short jumps up the trunk of an elm to the mouth of a large hole and there stops and scolds at the fox squirrel which has its den within. From the actions of the bird and from the absence of tracks leading from the tree I judge the squirrel is at home, but not to callers.

A mouse, after leaving one stump, has traveled for several rods along the margin of the brook and is now housed somewhere within the rotten core of a large white oak stump, or is safely ensconced beneath its roots. A bird, evidently a song sparrow, or other species of similar size, has hopped along the margin, stopping

here and there to feed on the seeds of grass or weeds which overhang the ice.

Farther down the brook, after two or three tributaries have added their waters unto it, becomes a stream of some importance. The deeper ice-covered holes are more abundant, the area of the ripples less. The ice has here been used as a highway by a number of animals. Another fox and a mink or two represent the carnivorous forms, and squirrels and rabbits the herbivorous ones, which have traveled here. The space beneath every overhanging bank and every pile of driftwood has been explored by the mink. It has stopped at the brink of each open ripple and evidently gazed and sniffed into its depths in search of fish or other form of aquatic life. The fox has traveled near the banks and smelled among the grasses. It is thus that these mammals seek their food when the bosom of earth is mantled with snow and her crust hardened by the power of frost.

At the base of the cliff of clay, ten rods long and thirty feet high, which rises perpendicularly from the brink of the stream, there are

many tracks, but not those of animals. They are the traces of hundreds of pellets of clay and gravel which, in this moist thawing air, have rolled down over the newly fallen snow onto the ice. Thousands of years ago the clay in those pellets was piled up and deposited in a solid bed by the melting of another ice sheet of enormous thickness which then covered all this area. There it has lain until the frost again acted upon it, setting it free from the bed or face of cliff where it has been held for centuries, and allowing gravity to pull it down upon another but far thinner bed of ice. When this breaks up the pellets will be carried down stream, some on ice cakes, others in water, until they are again deposited as the alluvial soil of some field. There the elements now locked up in their midst will become a part of grass or grain, and then of some animal which will give them wider distribution.

As I stand in front of the clayey cliff and write these words the particles are incessantly rolling and sliding down. They well illustrate in miniature the action of frost on the sides of

mountains. They show how landslides are started. The bed of clay debris on the ice of this small stream is *talus*. How short a distance must one needs travel to see excellent examples of the working of some great natural force, or to have a practical definition of some geological term.

On a number of logs crossing the stream the fox squirrel has traveled, the tracks made by short jumps, averaging about fourteen inches apart. The front tracks are broader, and side by side, as are also the hind ones, the latter being but one or two inches back of those in front. These squirrels evidently make most of their daily visits before nine o'clock in the forenoon, and their tracks in the snow show that they travel far and wide through the woods.

In numerous places the tracks of crows are seen along the open water, up one side of the fringing ice and down the other. In several places the misplaced snow shows where one had slipped and probably fallen on the smooth ice, and I can almost hear the involuntary crow "damn" which must have followed such a mis-

hap. In one spot, where their tracks are more plentiful, something like a bunch of white hair is visible just below the surface of the ice. Investigating more closely, I see the form of some animal beneath. Procuring a boulder, I crack the ice and then with a pole lift out a dead skunk, striped broadly with white above, jet black beneath. It is in good condition, and has probably been placed in the water by some trapper to remove the scent which, nevertheless, clings to it still. The crows have discovered its whereabouts and are awaiting its more complete dissolution, or the thawing of the ice before beginning to feast upon the carcass.

In the deeper pools of the stream the minnows have gathered. Here, sheltered by the ice above, they pass the winter months; feeding upon the innumerable diatoms and other small plants, which enable them to exist till the great awakening with its accompaniment of plentiful insect life again rolls round.

In a sheltered thicket near the stream bird life is plentiful. Blue jays, zebra and downy woodpeckers, snowbirds and tree sparrows are

there in numbers, their twitters, chirps and calls enlivening the welkin for rods around. A flicker also I note, which at intervals utters a shrill, loud, single call note, different from any I have heard the species make before. The bird is in a dogwood shrub and is probably making a meal of the scarlet berries which are yet plentiful.

Farther down, the perpendicular cliffs of gray and red sandstone, which mark the base of the Coal Measures, rise from the margin of the stream. From crannies along their front I gather an armful of the fronds of the polypody and christmas ferns—green as they were last June-time—and with them and with the music of the birds still ringing in my ear, I homeward start.

V.

Aug. 7, '01.—The sun shines bright from his throne in the skies, and his beams glance merrily athwart the maple foliage and glint along the grasses and sedges which border the margin of the stream. I sit on a great hewn log, twenty feet or more in length, which some pioneer

doubtless fashioned for his dwelling or his barn. It has served its purpose for years and now, by the rush of waters, has been carried down into this blue-grass pasture until a walnut tree stopped its onward progress.

The walnut, the sycamore, the thorn, the maple and the ash, rise from the banks of the stream and yield the coolness of their shade on these sultry August days. The blue-grass, rank and fallen, covers the earth with a dense green carpet, more pleasing, more valuable than any e'er fashioned by the loom of man. The kine graze on its stored juices and find therein a sustenance which causes them to wax fat and contented. A mild-eyed heifer, instilled with the spirit of inquisitiveness characteristic of her sex, comes and noses at my shoulder.

The water babbles o'er its stony bed and passes into quiet pools where its onward course is checked. In one of the longest of these, a reach it might be called in a larger stream, green sprays of the water weed[10] float up from the turbid depths. Turtles rise slowly and push

[10] *Elodea canadensis* Michx.

"The kine graze on its stored juices and find therein a sustenance which causes them to wax fat and contented."

their heads above the surface, inhale a long breath, eye me askance, and as slowly sink again. Within the depths of such a long, quiet pool, where the waters have no visible onward flow, dwell many forms of fishes and amphibians. 'Tis the home of the pout, the muskrat, the snapper, the bullfrog, the mud-loving mussel and the lamper eel. These denizens have no laws to obey, no schools to attend, no society to attract or cater to the foibles of. Drink they have about them. Sleep they can, when the notion takes them. Fevers and other diseases are to them mostly unknown. The one thing which the weaker have to fear is the maw of the stronger. Ever must they be on the lookout for the oncoming of the higher, the more mighty. But the weaker beget many of their kind, the stronger few, and thus the balance of nature is maintained.

On yester-eve my attention was attracted by a peculiar sound which came from the old pasture. It was a long, scolding snarl, resembling somewhat the chatter of a gray squirrel. At first I mistook it for such, and scanned closely

but in vain the branches of a nearby oak. Again the sound was uttered, and noting that it came from the lowland along the stream, I slipped to the brow of the hill, and from behind the bole of a maple, peered down into the valley. Soon I saw beneath a thorn tree a large bird bobbing its head up and down, and judged that it or something near was making the scolding noise. Thinking it a hawk jowling at a snake, I walked swiftly toward it, when it flew, arising but a few feet from the ground and carrying a large bird in its talons. It was a red-shouldered hawk, which I at first thought had caught a half grown chicken, but just then a green heron arose from the grass and moved in lumbering flight across the stream. Investigation showed that the heron had a nest in the thorn. The young were large enough to move about in the tree, which was partially covered with a wild grape vine, but were not strong enough to fly. The hawk had evidently swooped down upon one of them, but had found its prey too heavy to easily carry. The old heron had attacked it, and the

hawk, standing near the base of the thorn, was striking savagely at the heron, while the latter uttered the sound which first attracted my ear. It was the cry of a mother defending her young and was different from any note which I had ever heard the heron make. It was a sound of alarm, of hatred, of savage attack, all blended into one. Such tragedies are doubtless of daily occurrence along this stream, yet seldom come to the notice of man.

From May to September or later is a gala time for the dragon-flies along this woodland stream. Hovering o'er the surface of every pool; lazily winging their way across its depths, or resting daintily upon a blade of sedge or swamp grass; flitting here and there in dizzy, zigzag flight, hawking for insects as they go, their life seems ever a lively and enchanting one. I note a female rising and falling at intervals of two or three seconds, at each downward impulse inserting the curved abdomen slightly below the surface, and presumably depositing an egg. Probably twenty or more spe-

cies fly over the waters of such a stream each season, varying wonderfully in size and color, yet all with habits essentially the same.

Along the lowlands of this rippling stream and often springing from the shallow water are the stems of that lowly, aromatic, semi-aquatic herb, the peppermint. In the centuries that have gone by how many stomach aches, both of babes and mature humans, have the juices of this homely plant relieved! At the base of these damp shady banks is its favorite abiding place. Here its pungent fragrance permeates, unheeded, the surrounding air. I sometimes wonder if browsing cattle ever suffer from the stomach ache and find relief in the juices of its stems and leaves.

VI.

April 8, '02.—A balmy spring day has dawned at last. All nature rejoices therefor. A hen-hawk screams a challenge from the heavens; a flicker cackles in long continued cadence; the frogs woo with music unique in utterance; a fox squirrel scolds and chatters from the limbs of an oak across the ravine; while

red-winged blackbirds, purple grackles, titmice and turtle doves, everywhere utter their cheery calls. Bees, galore, hum and buzz along the pathway while seeking honey of the first spring blossoms, and butterflies flit here and there in search of mate or nectar.

I follow the loops of the woodland stream this morn, occasionally cutting across its bends. At intervals a "plunk" is heard, and looking down I see a burrowing cricket frog, endeavoring to hide from view in the mud. When I approach he leaps. He knows the water is there and without measuring the distance, he jumps, striking the water with a sound akin to that produced by a flat-sided pebble when dropped from a high bridge into the stream below.

Dace, chubs and smaller fry are seized with a new energy when my shadow falls athwart their vision, and wildly scatter, seeking to burrow beneath leaves, boulders or anything which will hide them from the goblin which they think they see upon the shore. One dives beneath a large immersed sycamore leaf and comes forth more quickly than it entered, overturning its

erstwhile shelter and disclosing a gigantic crayfish, which was there placidly dozing and waiting for just such a plump minnow to enter unawares and be nabbed by its slow moving chelæ. However, both entrance and exit were this time too rapid for the waiting crustacean to secure a meal.

Where the water ripples over a ledge of limestone, different species of brownish-green algae cling to the rock and float with free end swaying to and fro. The silt, fine earth and clay eroded by the winter's frost and rain, covers the sides of the sloping limestone banks, awaiting the coming of a freshet to be wafted on to lower levels. The spring fresh of a month ago found these winter-formed deposits frozen too hard to be broken loose.

The simple serenity of a small flowing stream; the gentle rippling of its onward moving current as, obeying the force of gravity it winds its way on and on to greater streams beyond, beget in spring time a sense of peacefulness and languor delightful to experience, but which cannot be described in words. The

"pe-to," "pe-to," of the tufted tit rings incessantly in my ears as I rest on a southern sloping hillside, where the blue-grass of last season fell rank and now lies in great brown and sere mats.

One often finds things of interest while sitting still, thought I, as I paused for a few minutes on the top rail of an old worm fence. In ten seconds my eyes had fallen on the largest snow trillium I had ever seen. It was growing on the side of a sloping bluff which rose from the brink of the stream, and around it were a score of smaller size; called into blossom on this otherwise bare north hillside by the April sunshine. Several species of small hymenoptera were busy about them, hovering over the half opened flower of one, gathering pollen from the fully expanded bloom of another.

Fifty feet farther along a winter wren came into view. With its short brown tail stuck up at right angles to its body it was resting on the roots of a sycamore, against which a pile of driftwood had lodged. Seeing me it began to squat and teeter; as does a boy or a hen making ready to jump or fly from a high place, yet fear-

ing to make the final leap. Soon taking courage, it started to hunting spiders and other wrennish tid-bits among the rootlets and the drift. Old friends, this snow trillium and wren, whom I first met some twenty years ago; old, yet ever new, ever welcome, especially when I can meet and greet them on an April day like this.

More like a mouse than a bird are the movements of the winter wren, as it flits in short leaps—never in long flight—in and out of every cranny and crevice, uttering at times a short, sharp "twit-twit" and peering with the sharpest of bird eyes at everything which bears any semblance to its sought-for food. Small aquatic neuroptera of the family Perlidae were abundant on roots and dead leaves about the water's edge, and on them the bird was feeding. Once it gaped as if surfeited with its chosen diet.

Along a small stream or branch like the one which I am descending, the naturalist can usually find more to his liking than along a wider creek or river. Moreover, he can pass readily from side to side, jumping or stepping from boulder to boulder, or with measured leap clear-

ing easily a ripple; whereas along a larger stream he must wait until he reaches boat, bridge or ferry to cross, should anything on the other side excite his curiosity. Here signs of mink and muskrat are more plentiful; mussels come closer into shore; cray-fish, impelled by reversed tail-movement, scurry back to shelter of leaf and rock; small scaled suckers, in serried columns, nose the bottom of the deeper pools and are more easily seen from shore or caught with snare. Here darters of various species are beneath your very eyes; while wherrymen or water-striders and whirligig beetles come easily within reach of net. Algae, too, are reached more easily, and where the stream runs over a floor of limestone, assume a deeper green in hue.

Here also, bird life, such as swamp, song and fox sparrows and others of the tribe of finches; warblers, wagtails, wrens and kingfishers come closer to you, are seemingly more at home and can be more easily approached than along the broader lowlands of the wider streams.

Farther down, the brook cuts through a gorge of sandstone, where masses of polypody fern,

lichens and mosses abound. Wild plums and the shad bush or service berry, now in blossom, o'erhang the sides of the gorge, while the wild hydrangea, which will yield its nectar to the bees and beetles of June, flourishes along its cliffs. Charming the spot to look upon to-day, yet in a month 'twill be more charming still; for then the green of leaf and the pink and blue of many a petal will enhance its beauty. By that time also butterfly of brilliant wing and bird of varied song will have become worthy denizens of this woodland dell.

VII.

July 7, '02.—Armed only with kodak and notebook, I have come forth in search of the shadow of a thought in my cerebral cells. On such a July morn, with a balmy breeze wafting its way among the trees, I delight to sit on the grassy bank of a woodland rivulet and give way to reverie. The gentle rippling of the onward moving water is one form of nature music of which I never tire. How swiftly it glides on-

ward, particle over particle, along the ripples and the shallows. As it moves

"It sings a song
Of a leaf that sailed along
Down the golden braided center of its current swift and strong,
And a dragon-fly that lit
On the tilting rim of it,
And rode away and wasn't scared a bit."

In the pools beyond the ripples crayfish, frightened by every shadow, move backward and downward into the mud and silt. Perchance a sand darter or a "johnny" lounges in the bottom, its head alone visible, ever waiting in silent expectancy for some morsel in the form of gnat or mosquito larva to come its way.

Above these pools dragon-flies in number wing their ceaseless flight in headlong zigzag fashion, and court and mate and die. Just now it is a green headed monster with long, slender black body whose wings, as it hovers a foot or two away, are wholly invisible, so swift is their revolving motion. Anon it hawks up and down a few rods of the stream, its eagle eye ever on the search for other flying form small enough

for food. What preys upon the winged dragon-fly? Methinks its body is husk-like, dry and indigestible. It evidently has few enemies. In the larval state, when thicker bodied and more juicy it has many among its aquatic neighbors. When its juices have mainly changed to gauzy wings and chitinous skin few are the forms which can relish and digest it.

Gracefully the wherrymen or water-striders glide over these pools, borne up by the surface-film of the water which, though invisible to human eye, everywhere covers it like a membrane stretched equally in all directions. The wherrymen find this film a pavement well suited for their airy feet, as they skate merrily to and fro in search of living prey. When disturbed they often move so swiftly that they seem but darting lines as they circle round and round each other in a mystic dance. The under parts of the insect are densely covered with fine hairs which form a perfect water-proof vestment. The body is held just above the water by the six legs, each of which rests in little saucer-shaped depressions of the water-film. The

hind ligs, from the knee down, rest on the water, and the indentations formed by them are long oval in form, while those made by the front legs are circular in outline. The middle legs are longer than the others and the portion of them touching the water is smaller. The insect uses only these middle legs in propelling the body, moving them in a quick, forward stroke like a pair of oars. It thus glides or skates on the front and hind legs, the disks which they form seemingly traveling with the insect. In early morn and late afternoon, when the rays of the sun strike the water at a certain angle, they are deflected by the disks, and the resting wherryman forms a most peculiar shadow. When in motion this is rendered more unique by the quick movement of the long propelling legs.

Of water beetles, a score or more of kinds inhabit the depths of the pools. Most of them are both predaceous and voracious, feeding not only upon other insects, but even small fish. During the mating season, many of them leave the water at night and are often attracted by elec-

tric and other lights. At present one is diving and darting here and there, clinging one instant to the margin of a submerged blade of grass, the next to the stem of a dead leaf. Ever restless, it moves with but slight pause freely through its limpid element, at times rising and hanging for a few seconds, head downward, with tip of abdomen just above the surface of the water, while it inhales a new supply of air.

Along the shaded banks of the stream the ground ivy in many places mats the surface of earth with great masses of its crenate kidney-shaped, dark green leaves; exhaling ever at this season the peculiar odor which is its most characteristic possession. Below the ground ivy, and often springing from the mud and silt in the margin of the water, are the four-angled stems of the monkey-flower, two species of which open in mid-summer their purple-tipped petals to drink in the dew and the sunshine.

Before me as I write is another pool, deeper in the past than now, which in years agone I have seined for suckers and from which, on one occasion, I pulled forth a gigantic snapping

turtle, its flaring carapace covered with algae, while scores of leeches clung to the loose skin of neck and tail. Hoary with age and these parasitic attachments, ill-smelling, hissing and snapping, I was only too glad to dump him back into the pool, where to-day, for aught I know, he may still be dwelling, the monarch of its depths. Here, too, the sunfish "hang motionless" above their nests of tiny pebbles, waiting for the July sunshine to call into active life the protoplasm within the minute spherules where many a future "sunny" at present sleeps.

The kine love these wider pools and in the heat of the day or the glow of eventide are often seen standing therein, the water to their briskets, or even to their mid-sides. An hour at a time they may stand thus, ruminating and perchance pondering o'er the pleasant weather and the rich juiciness of their Kentucky blue-grass.

But hark, a "ke-uck," "ke-uck" is heard rapidly nearing, and across an open space comes straight toward me an ungainly bird in rapid awkward flight. It is a green heron, "shite-

poke," or "fly-up-the-creek," whichever suits your fancy. Just at present the last name is most suitable, for that is exactly what he is endeavoring to do. He is within a rod of me before he clearly makes me out. Like lightning he veers to a right angle and is away over the low hills to my left. From a thicket of thorns farther down the stream his mate answers. There, perchance, they have their nest, a rude platform of short sticks, or now, more likely, their family. In the course of each half mile along such a stream as this, two or three pairs of these herons nest each season, feeding upon frogs, minnows and such other aquatic and semi-aquatic forms as suit their fancy. Their slender bodies, ungainly flight, and queer sounding quawks, add a variety to the life of this sylvan valley which to the naturalist is ever welcome.

VIII.

July 20, '02.—The mid-tide of summer is with us; not a summer as of past years, hot, dry, dust-ridden; but a summer of seasonable rainfall, of cool, refreshing nights, of dark

green, luxuriant foliage. O, weather, thou medley of sunshine, cloud and varying air current, how much our pleasures, as the years go by, are dependent upon thy changing moods!

To-day the purling ripple of the stream again doth greet me. A great mass of foam, formed in some manner by the onrushing torrent after yesterday's rain, has lodged against the bank just below a slight fall. The water, in rushing past, at intervals bites off, as it were, a portion and bears it on and on to lower levels. These masses of foam are the only crafts now sailing this stream. They go by quietly and placidly. Perchance they collide, and for a moment mingle their particles, then separate and again glide onward.

The waters from two springs merge and flow together. They are soon joined by those of a third, and their united current by those of many more; the whole, in time, forming a great river, which finds its way down to the sea, the parent or starting point, the beginning, the ending of all. It is so with man. His days are his springs, his onward flowing waters. They

merge and mingle. Each loses its identity and becomes a part of the mighty river of life. As their numbers become greater, their flow grows more quiet and placid. The tumultuous rapids of youth are gradually changed into the broader pools of middle life; but ever the course is onward, until finally the broad, slow flowing current reaches the ocean—the eternity of the future.

In the rich lowlands of this stream the papaw flourishes, bearing its large, dark green oblong leaves, about which an ajax butterfly is now flitting. The insect is dependent upon the plant for its future existence, i. e., for food for its progeny. Ages ago this butterfly studied botany, and has inherited a knowledge which enables it to distinguish the foliage of this *Asimina* from that of any other of the many shrubs and trees growing hereabouts.

Where an old rail fence touches the edge of a bend in the stream I reach out my hand to steady myself while stepping from one hummock of grass to another. As my fingers rest on the gray, lichen covered top-rail, my eye hap-

pens to catch a glimpse of a long slender form lying stretched at full length on the rail. My hand is within three inches of its head, and before the nerve impressions can reach my brain and travel back there is an involuntary spasmodic jerk of my arm, which causes me to lose my balance and splash shoe-top deep in the water. That inherited, involuntary fear which comes to man and many animals at the sight of a snake is back of the action, for the form thus basking in peaceful ease is the body of a cow snake, about four and a half feet in length. Perfectly motionless it remains, depending apparently upon its harmony of color and form to shield it from discovery. The whitish or grayish markings on its sides harmonize well with the hue of the lichens. It has doubtless been making its way slowly along this easy highway, in search of tree-toad, katydid or bird, or was quietly waiting and watching for some of these various forms to approach.

I step back and gaze at it for a few minutes in order to see if it will move. Several times I approach closely its head, but am ever met by

the "cold stony glare" of the serpent. Not an iota of an inch will it budge; its eye always seeming to gaze intently into mine. Perhaps it is thus the snake exerts its alleged charms upon other forms of life by "staring them out of countenance." Lacking eyelids, it does not have to wink at intervals and thus lose for the fraction of a second the potency of its glare.

Finally growing tired of its searching gaze I retreat to the next corner of the fence. As soon as I am six feet away the reptile begins to creep slowly along the rail, with that easy, gliding movement which no other form but a snake can assume. Reaching the lower limbs of a young wild cherry which grows in the fence angle, it climbs them slowly and methodically. At times its head and a foot or so of its body rise unsupported and move from side to side until it espies a crotch or limb, between whose base and the main trunk it glides. Mounting higher and higher it finally reaches a slender branch; where it bends its tail about a twig for support, turns the body in a graceful half loop, and reclines on the slender spray of twigs and

leaves. Here it is evidently intending to lurk for bird or insect which may alight within reach. At times it is swayed violently back and forth by the stiff breeze, but seems in no manner alarmed at the motion. Climbing the fence I pass around and close beneath it. Again it makes no movement, but the stony glare follows my every motion. Once or twice it gapes, long and deep, seemingly from ennui, and without darting forth its tongue. The white throat and fore belly and the spotted or checkered under parts glisten prettily in the sunlight as its perch is swung to and fro by the breeze. Finally I pinch its tail gently to cause it to move. This has the desired effect. Slowly and gracefully it makes its way down to the fence and along the rails to the nearest angle, where it descends and is soon lost to view in the marsh grass bordering the stream.

Clumps of the black willow[11] in many places lean gracefully over the flowing water of the stream. The trunks of the larger trees have the bark furrowed and rough, resembling somewhat

[11] *Salix nigra* Marsh.

that of the bur-oak. This willow at all seasons, but especially in winter, exhales a peculiar bitter, penetrating odor.

In places the stream abuts against a perpendicular bank of clay and gravel, ten to thirty feet in height. Sometimes this is bare, but more often it is overhung with clumps of the wild hydrangea or the climbing swamp rose. From the bases of these banks or from depressions in their sides in many places emerge the feeders of the stream, springs whose waters ever flow or seep, never failing in time of utmost drouth. Pure, cold and clear, or sometimes slightly tinged with the yellowish red hue of oxide of iron, they furnish moisture to many a form of God's lowly creatures.

Sauntering down the stream, I in time reach the thicket of prickly ash, dense of itself, yet overhung in places with the foliage of the wild frost grape. On a little terrace, five feet above the water, it flourishes, the only one of its kind for miles around. Vireos, blue-gray gnat-catchers, pewees and thrushes are to-day flitting about its borders, or calling from its deepest re-

cesses. An area of only about fifty feet square does it cover, yet it gives shelter to many a woodland sprite. In winter I have seen the chewink scratching among its fallen leaves; have heard the cardinal's clear whistling note from its thorny midst, and have noted a covey of quails, when hard pressed by the hunters in a neighboring stubble field, fly to its fastnesses. To-day it is peaceful and quiet, welcoming me with its pleasing fragrance and a nodding of its dark green compound leaves. Over it the glory of the mid-day sun at present falls, and from it at eventide the flute-like call of the wood thrush will resound.

A Dune Idyl.

"You must love the crust of the earth on which you dwell more than the sweet crusts of any bread or cake; you must be able to extract nutriment out of a sand heap." —*Thoreau.*

But few of the citizens of Indiana know that within the bounds of their State is a typical desert region—a region where grass grows not at all or but sparingly—where for miles on miles stretch unfenced plains, vales and hills, covered with a loose gray sand. Within this area there is little sustenance for plant or animal—no water to quench one's thirst. Rugged and rough, desolate and forbidding to one who is accustomed to the green fields of central Indiana, there it lies, a desert waste, gray, loose, wandering. Over its surface the wind is master. The breeze beckoneth and it obeys. 'Tis here to-day, there to-morrow, and gone the day after. The lake has vomited forth these sands and, at times, when the breeze blows from the right quarter, back they go into the maw which gave them birth.

"There it lies, a desert waste, gray, loose, wandering."

The northwestern limit of the State comprises forty-three linear miles of the southern beach line of Lake Michigan, one of the grandest bodies of fresh water on the globe. Along this beach was for years the only public road in the region, all overland communication between Fort Dearborn, now Chicago, and Detroit, in the early part of the past century, having been along its sands. The limits of this beach line are ever changing. Water and wind are, every second, tearing from it in one place and adding to it in another. From Michigan City, southwest for ten miles, the removal is probably greater than the accumulation, but along the remainder of the Indiana shore the beach line is being widened. In the latter portion a person walking along the margin of the water can see that each wave throws up a minute ridge of sand, so minute, in fact, that it is scarcely visible. Perhaps the next succeeding wave carries it away. But if it be thrown high enough to remain unmolested until it has time to dry, its particles are caught up by the wind and carried farther inward. In most cases they are piled

up for a time along the foot of a ridge or dune, which is found from fifty to one hundred yards from the water. If a stiff breeze be blowing, the traveler over this beach is bombarded by the fine, sharp edged particles of sand, many of which strike against his face and produce a stinging sensation. These grains are composed of small angular pieces of quartz and have a light brownish tint.

Near the shore the bottom of Lake Michigan is uniformly covered with sand. At the shore line this sand is about ten feet deep, and it extends out to where the water reaches a depth of thirty-five feet. Beyond this depth of water the lake bottom is composed of a stiff, tenacious blue clay, which is said to contain partings or pockets of sand, from whence, in part, comes the supply which is constantly being carried shoreward by the waves. Much of the sand is doubtless blown from the dunes by south winds back over the lake and, falling on its surface, is again brought to land. Moreover, by storms and by ice jams in the spring, all projecting points along the lake are slowly worn down and the

material composing them is carried out to be again returned and built up in a new place. Thus much of the sand is in constant circulation, and the necessary new supply is not so great as it appears to be.

The dunes constitute the most striking and characteristic feature of the shore line. They are great sand ridges, sometimes continuous for a mile or more, but more often broken or cut by "blow-outs" into isolated rounded hills which in places reach one hundred and ninety feet above the level of the lake. In some places the ridges are for long distances wholly destitute of vegetation. Their bared surface, fifty to a hundred feet in height, with the sand piled just as steeply as it will lie, gleams and glistens in the sunlight, and reflects the summer's heat with unwonted force. Other ridges and rounded hills, especially those a mile or more from the lake, are often covered with black oak, northern scrub pine, stunted white pine and many shrubs and herbs peculiar to a soil of sand. Notable among these is a thick-leaved species of the prickly cactus, the only Indiana example of that

prominent group so characteristic of the desert plains of the distant West. The roots of this vegetation form a network about the sand grains and prevent the leveling of the dunes.

In time, however, a tree is uprooted, or a forest fire burns off the vegetation. The protecting network of rootlets is destroyed. A bare spot results, over which the winds freely play. A great storm from the north or northwest scoops out a small bowl-shaped cavity and, carrying the sand either south or southeastward, drops it over the hillside. The cavity is cut deeper and wider by succeeding storms, and a great "blow-out" in time results. Where a few years before stood a high hill or unbroken ridge, now exists a valley, or cavity in the hillside, acres, perhaps, in extent, and reaching nearly to the level of the lake. The sands which were once there now constitute new hills or ridges, which have traveled, as it were, a greater distance inland. In many places the drifting sands have wholly or partly covered a tall pine or oak tree. Where but partly covered, its dead—though sometimes living—top projects for a few feet

"In many places the drifting sands have wholly or partly covered a tall pine or oak tree."

above the crest of hill or ridge. One may rest in its shade and not realize that he is sheltered by the *upper* limbs of a large tree, whose trunk and main branches lie far beneath him, embedded in the sands.

But few forms of animal life dwell among these dunes. Vegetation is not plentiful enough to furnish sustenance. The twitter and chirp of bird is seldom heard. A lizard, scampering rapidly along, will sometimes be seen, but even they are scarce. In the yielding sands the striped gopher burrows its home with ease, and on their bared surface the spreading viper basks. Insect life is less abundant than in any area of equal size in the State. The tiger beetles and "doodle-bugs" alone are common, since they find here a habitat well suited to their tastes.

Only to the botanist and to him who seeks solitude, has this region charms. Here the hermit has his hut, and the lone fisherman his camp. Back, away from the sound of the breaking waves, a peaceful quiet pervades. There may one sit and literally watch the growing of the hills. There will he come to realize, as

never before, how the slow, unceasing action of some of nature's milder forces have modified to so great an extent the surface of the earth. Around him on every side is matter—sand. Coming in from over the lake is the force—wind. Slowly but surely building up about him is the result of the action of force upon matter—hills. Thus have dunes been formed, here or elsewhere, for ten thousand times ten million years.

An Evening Reverie.

Across the lapse of by-gone years,
My fancy takes its flight to-night;
And through the mists of rising tears
The forms of loved ones come in sight.

I stretch the hand of welcome forth,
It meets not once a tender grasp;
Those forms are visions not of earth,
They rise—my very soul to rasp.

They take me back to days of yore,
When I, a youth, with fancy free
And heart of hope, did wander o'er
The hills and dales so dear to me.

Then, all of nature out of door
Did open wide her field and fen,
And beg of me to read her lore
And keep my eyes from works of men.

I heard her not, her secrets grand
Were hidden from my feeble sight,
And no one tried with tender hand
To lead me on into the light.

And so I drifted, day by day,
Till years had sped on wings of time,
And then the mists were torn away
And nature's beauties shone, sublime.

Too late it was; youth's potent powers,
To see, and hear and understand,
Had vanished with the fleeting hours;
And gone, the cunning of the hand.

And so to-night, in silent thought,
I live again the days of old,
And wish for what can ne'er be bought
With yellow scales of purest gold.

And round the world, in sad refrain,
I hear that wish by other men;
Its burden ever is the same,
"O, would I had my youth again!"

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